PERSONALITIES

By George F. Taubeneck

Homecoming

Going to a convention of the American Society of Refrigeration Engineers is something like returning to a fraternity house for Homecoming. One is always sure to see there a small but very select group of friends.

Many of these gentlemen—like General Electric's RUSS AYRES, York's L. S. STRONG, and the South's C. T. BAKER—one generally sees only at A.S.R.E. meetings.

Others—like GLENN MUFFLY, E. T. WILLIAMS, and Frigidaire's HARRY WILLIAMS—one also finds at safety code drawings-up and hearings.

Still others—like Detroit Lubricator's IRVING KNUDSEN, Kinetic Chemicals' "DUSTY" RHODES, General Electric's CHESTER LICHTENBERG, and GEORGE BRIGHT (who fell ill at the opening of the convention, and didn't recover until it was almost over) one is likely to encounter anywhere and often.

But no matter. Seen rarely or often, these men are the sort with whom one is able to resume a lively and interesting friendship just where it left off at the last previous meeting.

The organization is small enough to be warm, fraternal, and cohesive, large enough to include the refrigeration engineering profession's best minds.

And never has this writer—who is not an engineer by any measurement or standard—found a group so mutually congenial or so uniformly stimulating.

* * *

The Old and the New

Two classifications—for a time it was feared that they might possibly become factions—of refrigeration engineers are included in the A.S.R.E. membership. That is, classifications according to the type of manufacturing concern from which these engineers draw their regular stipend.

First classification is much the older and somewhat the larger. It is that of engineers attached to the so-called "heavy" refrigeration machinery manufacturers.

These are the engineers whose experience has been gained from designing ice plants, cold storage warehouses, commercial coolers, and—more recently—air-conditioning equipment. They are sometimes called the "ammonia group," because until recent years most of the systems they designed used ammonia as the refrigerant.

Such manufacturers as York, Frick, Carbondale, Carrier, Vilter, and Worthington have formed the nucleus of this group. They are all located in the East, and most of their activities in connection with the A.S.R.E. have taken place in New York.

Younger and perhaps more vociferous have been the middlewestern members known as the "small machine group."

These are the engineers attached to the staffs of manufacturers of household refrigerators, such as Frigidaire, Kelvinator, General Electric, Norge, Westinghouse, Universal Cooler, Copeland, and Servel.

Activities of this group have centered chiefly around Detroit, where there is an especially lively and strong local "section" of the A.S.R.E. which meets frequently and maintains a keen and unflagging interest in the interchange of new ideas.

For a time this newer and younger element of the society enlivened the proceedings at A.S.R.E. conventions in a fashion which was hair-raising to members (excepting, of course, those who had little or no hair left to raise) of the old school.

Papers were debated in the formal "discussions" with vehemence; informal arguments in the foyers and anterooms were embellished with as many gestures as a conversation between a Frenchman and a Jew on the subject of Hitler.

The "ammonia group" considered the newcomers brash young upstarts and interlopers; the "household group" thought the older members were moss-bound fogies who were well on the road to deserved extinction.

And then came a development which tended to bring together the two groups, and which seems destined to fuse them—air conditioning.

Both groups of manufacturers are getting into this field, and neither knows all about it yet.

Out of this situation a mutual respect has been born. The younger engineers are learning that the men who have been designing heavy duty machines for so long have accumulated a great deal of invaluable experience which is proving useful in solving the manifold problems of this new branch of the science. On the other side of what *was* "the fence," the younger engineers are contributing ingenious ideas and painstaking research which the veterans recognize as being essentially sound.

Result: Sessions of the A.S.R.E. 1935 midwinter meeting in New York last week were the most amicable this writer has attended in the last five years.

* * *

A Few Personals

THOMAS COYLE, who personalizes the R & H Chemicals Dept. of du Pont to the refrigeration industry, thought that Dr. C. S. CRAGOE in discussing refrigerants in his talk on "Safety in Air Conditioning" did not give accurate information on methyl chloride.

Surprising to us was the fact that the paper got by with almost no criticism or discussion. Usually, all you need to do if you want to start hell-for-leather fight in the refrigeration industry is bring up the subject of refrigerants.

W. W. RHODES, sales manager of Kinetic Chemicals, Inc., had to put up with no end of good-natured ribbing about the eight-column banner headline on page 2 of the Dec. 4 *New York World-Telegram*: "Du Pont Monopoly in Refrigerants Seen in City's New Air-Cooling Code." To the urbane Mr. Rhodes, the *World-Telly* was raising a hurricane in a beer bottle.

"Our share of the total expenditure for an air-conditioning installation is so small," he deprecated, "that even if you could call our possible position in the business a monopoly, it wouldn't be worth getting exercised over."

* * *

Well represented at the A.S.R.E. convention was ELECTRIC REFRIGERATION NEWS. Publisher F. M. COCKRELL and Managing Editor PHIL REDEKER were there, in addition to the editor. Also present was K. M. NEWCUM, author of the forthcoming MASTER SERVICE MANUAL and many of the articles on servicing and installing which have been appearing in the NEWS this year. Mr. Newcum has a comely wife, who bears a startling resemblance to Katherine Hepburn.

JACK SCHAEFER, formerly engineering editor of the NEWS, but now of the York Ice Machinery Corp., also showed up—making it seem almost like Old Home Week for the NEWS staff. From all sides Jack was receiving congratulations on his recent marriage to a girl he met at the A.S.R.E. convention in Kansas City in 1931.

* * *

O. J. WILLOUGHBY, affable and entertaining publisher of the militant southern ice man's paper, *Refrigeration*, declares that the national advertising campaign of the ice industry—featuring MARY PICKFORD in a radio program—is but a drop in the bucket compared to the total amount of advertising which ice interests will do *locally* in 1936.

* * *

The expected debate over GLENN MUFFLY's report on proposed standard ratings for air-conditioning equipment did not materialize. By the time the astute and politic Mr. Muffly had finished calling off the names of the experts who collaborated on these standard ratings, everybody was too highly impressed with their authority to offer any criticisms or suggestions—if they had any.

* * *

No War Next Year

H. A. GRANARY, director of General Electric refrigerator sales in France, insists that there is no immediate possibility of a war in Europe—"not for five or six years, anyway."

Americans—and especially American newspapers—seem far more excited over troubled conditions abroad than Europeans do, Mr. Granary observes.

Just arrived from Paris, whither he will return early in January, he finds the economic situation both here and on the continent vastly improved over last year. Naturally he expects the refrigeration business to benefit from this happy state of affairs.

E. C. PANGBURN, manager of the refrigeration department of the International General Electric Co., introduced us to Mr. Granary, and to JOHN CYPRIL DOUGLAS, who has just returned from a survey of market conditions in Mexico.

Although he admits that ELECTRIC REFRIGERATION NEWS is invaluable to his foreign agents, Mr. Pangburn declares that it occasionally is embarrassing, for foreign subscribers frequently get news of new General Electric products and policies through the NEWS before the G-E organization can—or is ready—to get out announcements to its own agents.

T. K. QUINN, formerly vice president of the General Electric Co., and now president of Maxon, Inc., sent us to Mr. Pangburn when we told him about our coming trip around the world. Said Mr. Quinn: "This trip should be a most timely and valuable project for you, the paper, and the industry."

* * *

Col. Knox on the 'Pew' Deal

Mr. COCKRELL and the writer attended a pretty fancy dinner at the Waldorf-Astoria while we were in New York last week. Starched up in stiff shirts and black tie so that we barely recognized each other, we attended the annual banquet of the Associated Business Papers.

The Waldorf charged $7.50 per plate for this dinner, but what it was they served which made it worth that price we never did find out; for after the soup course we sallied forth to take some snapshots of big shots, and when we got back they were just serving the dessert (brick ice cream).

Speaker of the evening was COL. FRANK KNOX, publisher of the *Chicago Daily News*, and prominently mentioned as a possible Republican nominee for the Presidency of the United States.

What Col. Knox had to say about the "Pew" (it stinks) Deal was a caution, and his phraseology had hair on its chest.

"Like the vast majority of Americans," he said, "all my life I have had to face realities. Because I have had to face them I believe that every man who works is entitled to possession of the fruit of his own labor—and that if a man denies himself pleasure by saving he is entitled to have that pleasure later.

"I believe it is the duty of government to protect the savings of its own citizens—and not to destroy them.

"I believe that under rules and regulations laid down by the people themselves a man or a woman should be permitted to live his or her own life, as he or she chooses—instead of being compelled to follow rules and regulations laid down by a set of strutting bureaucrats.

"I believe that those who are elected to public office should deliver to the people what these same people contracted to buy with their ballots—and not, after becoming office holders, deliver them a pig in a poke.

"I believe in an American form of government—and not in one which at every sunrise finds its administrators facing east in worship of Karl Marx.

"I believe that man creates his own Utopias by spending less than he earns—and that government creates Utopias for its own citizens by spending less than it collects from these same citizens.

"I believe in a form of government in which the people themselves are supreme—and not in the rule of a dictator in the guise of a democratic president.

"In other words, I believe in Democracy. Because I believe in Democracy, I believe in private enterprise—and I do not believe in collectivism.

"By the very nature of its operations the 'planned economy' about which President Roosevelt and Under Secretary of Agriculture Tugwell talk so fondly makes dictators—and, dictators make their own rules, using whatever force is necessary to see that they are obeyed.

"In a democracy such as ours dictators can gain power by luring the people with unfulfillable promises—and they can retain it by doing two things:

"1. By stealing the people's money and being 'generous' with it.

"2. By encouraging dissension among the people and preaching that private ownership is a capitalistic theory when, as a matter of fact, it is no such thing. Private ownership is a teaching of the Bible."

"As a matter of fact," Col. Knox continued later in his address, "business began to improve with the voiding by the Supreme Court of the United States of that New Deal cure-all for business, the N.R.A. In the interest of political maneuvering Mr. Roosevelt doubtless considers it good politics to claim everything and concede nothing, but I have more than a sneaking suspicion that credit for improvement in business conditions belongs in two places, and only two places:

"1. The Supreme Court of the United States for making the decision, and

"2. To business men who, heartened by the court's decision, regained their faith in America's remaining Americans and began to move forward.

"The American people will not soon forget the President's angry attack on the court for its action; and his statement that the decision had thrown the country back 'into horse and buggy days.'

"I say to you in all earnestness that it is my belief that the only body which has kept this nation from becoming a bureaucratic autocracy during the present term of President Roosevelt has been the Supreme Court of the United States.

"When the founders of this country wrote the Constitution they wisely divided authority among the three branches of government—the legislative, the executive, and the judiciary. Each branch was to be a check on the others to keep this nation a democracy.

"Without these three branches of government there can be no democracy such as ours. There can be no democratic form of government because there can be no balance of power in it."

Concluded the Chicago publisher: "I am opposed to collectivism, or 'planned economy,' because:

"1. It establishes in authority men who are no better than we ourselves—and, are quite likely to be worse.

"2. It is worship of the state—and a strangulation of the individual.

"3. It removes from every man or woman his or her individual rights in contravention of the Constitution and, what is more, in contradiction of the teachings of the Bible.

"4. When so-called Liberals talk of it as a 'new idea' they prove their own ignorance of history. It is an idea as old as the hills of Asia, when kings and their puppets had the right of life and death over all the people.

"5. The new idea in government is not the so-called liberalism of the New Deal intelligentsia—the new idea is that democracy and freedom which the founding fathers invented and which the New Dealers seek to destroy."

* * *

Come Again Next Week

In one of the most brilliant getting-out-of-hole oratorial jobs we've ever heard performed, Col. Knox was answered by HENRY F. GRADY, chief of the Division of Trade Agreements, Department of State.

We'll bring that speech to your attention in next week's issue—also a ringing speech by S. Wells Utley, president of the Detroit Steel Casting Co. Watch for them.

Knox Knocks New Deal

Col. Frank Knox, publisher of the Chicago Daily News, and prominently mentioned as a possible Republican presidential nominee, lashed out at the New Deal and its "planned economy" at the Associated Business Papers convention banquet in New York City last week. Business improvement, in his opinion, came right on the heels of the Supreme Court's nullification of the New Deal's biggest fiasco—the NRA.

Engineers Follow Closely as Proposed Air-Conditioning Standards Are Outlined

(1) Two old-timers in A.S.R.E. ranks, Fred Ophuls and George Horne, the latter of Merchants Refrigerator Co., New York City, study their copies while Glenn Muffly outlines the proposed methods for rating and testing air-conditioning equipment. (2) Mr. Ophuls checks closely on a point. (3) Harry Edwards, National Carbide & Carbon Co., interposes a suggestion. (4) Messrs. Ophuls and Edwards get still another slant from Mr. Horne. But all agree that in the final analysis, the standards are above reproach.

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Sales Increases Are Reported in 3 Retail Areas

Cleveland Reports Gain For 11 Mos., Pittsburgh & New Jersey for 10

Reports of electric refrigerator sales from Cleveland, northern New Jersey, and the tri-state territory covered by the Pittsburgh Electric League—the first for 11 and the other two for the first 10 months of 1935—show that, in all instances, figures are well past their marks for the corresponding months of last year.

Sales by Cleveland distributors, as reported to the Electrical League of Cleveland, totaled 1,259 units for November, an increase of 131.8% over the 543 units reported sold during the same month last year.

The total for the year to date is 23,242 units, reports Ralph H. Jones of the Electrical League. This is an increase over the corresponding period of 1934.

November's total in Cleveland passed by a good margin the 982 units reported sold by distributors during October. This figure was 66.7% better than the October, 1934, record of 589.

A new record for household electric refrigerator sales in New Jersey's Camden, Gloucester, and Burlington counties was established in the first 10 months of this year, according to reports by the Electrical League of South Jersey.

Sales in the three counties totaled 6,300 units, for a dollar volume of $1,134,000. Average unit retail price dropped, however, from $190 in 1934 to about $180 this year.

A successful late summer sales drive by distributors and dealers made possible the new high mark, month-by-month reports show. Practically all of the 15% gain over 1934 was registered in July, August, and September, other months being about even with last year. First half year sales showed only a slight increase.

Average unit price figures show a definite trend to higher priced units in the later summer and early fall. From March through June the average price was only $176, but by September the figure was $198.

Isadore Borstein is chairman of the League's refrigeration committee, which also includes Ben A. DeYoung, William Fulton, Norman Middleton, Leo Spector, and John Young.

October was a surprisingly good month for the territory of Pittsburgh Electric League, sales for the month showing a 371% increase over similar 1934 figures, and the total for the year being 21% ahead of its last year's mark.

While the early months of the year had seemed to forecast a runaway market, these gains were greatly reduced by a sales slump in May, June, and July. Rising sales in recent months, however, brought back the year's mark from a 30% loss to an average 21% gain for the 10 months as a whole.

According to figures compiled by the Bureau of Business Research, University of Pittsburgh, electric retailers in the Pittsburgh area reported sales 7.5% ahead of October last year, and 10.7% ahead of 1934 for the 10 months period. Sixty-four firms reported.

Thirteen electric wholesalers showed a 53.4% increase over October, 1934, and a 26.5% increase for the 10 months.

Refrigerator Taxes Drop During October

WASHINGTON, D. C.—Manufacturers of mechanical refrigerators made tax payments to the U. S. Treasury Department of $258,797 during October this year, as compared with payments of $308,406 during the same month in 1934, reports the Bureau of Internal Revenue.

Alco Valve Will Open Chicago Sales Office

CHICAGO—Alco Valve Co., Inc., will open a district sales and engineering office at 543A W. Washington St., here, Jan. 2, officials of this company report.

J. A. Schenk, who has been conducting application research at the Alco Valve factory in St. Louis for the past year, will head the new office.

Norge Will Stress All Products in 1936 Selling

DETROIT—Norge's sales story for 1936 will be an all-products story, distributors and field men from all over the country learned during their annual convention here last week.

In their five-day meeting, conventioneers witnessed a confidential preview of Norge's refrigerators, ranges, washers, and ironers for 1936; saw the latest developments in the company's line of heating, air-conditioning, and commercial refrigeration equipment; heard Sales Promotion Manager James E. Sterling outline the program of trade paper, magazine, and distributor and dealer cooperative advertising; saw three new sound films and a couple of sample movie trailers; and gasped when President Howard Blood predicted sales of 2,238,000 electric refrigerators in 1936.

President Blood's prediction, considerable of a surprise to many distributors, is the aftermath of a survey of 34,866 housewives by Cramer-Krasselt Co., Norge advertising agency. On the basis of the agency's 1934 survey, President Blood this year predicted sales of 1,900,000 household units.

What astounded the distributors most was the extraordinarily high positive buying intent, regarding electrical appliances, evidenced by most of the women surveyed.

Where, in the 1935 survey, only

(*Concluded on Page 5, Column 1*)

Creditors Discuss Plans for Grunow

CHICAGO, Dec. 16—Creditors' committee for General Household Utilities Co., manufacturer of Grunow refrigerators and radios, met here today to consider a plan for the reorganization of the company. The company is now operating under a trusteeship, with William C. Grunow and Charles H. Albers as trustees.

Details of the plan of reorganization as accepted by the creditors' committee will probably be made public within the near future, declares O. M. Holen, secretary of the committee.

Counter Freezer Group Adopts Code of Ethics

CHICAGO—To govern practices among manufacturers of counter-type ice cream freezers, the Counter Freezer Association recently drafted a code of ethics, reports C. S. Clark, secretary-treasurer of the organization.

This Code of Ethics will govern the members of the Association and their employees, in the conduct of advertising merchandising and selling their products.

Complaints of violations by members shall be directed to the secretary of the Association who shall investigate in person, so far as possible, the circumstances of the complaint, and report the result to complainant. Such complaints shall not come before any meeting of the Association as official business except where the secretary has failed to adjust the complaint, and then only at the request of the complainant.

Each member agrees to open his correspondence files, contracts, or books of accounts to the secretary with reference to the particular complaint in question. All records and correspondence in cases of adjusted complaints shall not be published or made a part of the Association's records, but shall be strictly private business between the interested members.

Each member shall send a copy of this code to each of its executive, sales and service representatives handling counter freezers for their guidance, with instructions to observe the pro-

(*Concluded on Page 11, Column 1*)

Mid-Western Distributor For Lipman Appointed

BELOIT, Wis.—Appointment of the Polley-McLaughlin Co., to distribute Lipman equipment in Sioux City, Iowa, and in parts of Iowa, Nebraska, and South Dakota, included in this company's territory, was reported recently by officials of the General Refrigeration Sales Co.

Don Polley and James McLaughlin head the new Lipman distributorship.

Refrigerants are Focal Point at Second Hearing

Charge Made N.Y. Code Is Too Restrictive on SO_2 and CH_3Cl

By Phil B. Redeker

NEW YORK CITY—The matter of the qualification of various types of refrigerants for use in air-conditioning systems under the provisions of the proposed ordinance of the City of New York relating to refrigerating systems, quiescent at the first hearing on the code, became a matter of open warfare at the second hearing, held last Wednesday, Dec. 11.

The twin brothers A. H. and F. A. Eustis of the Virginia Smelting Co. led the fight to amend the code to make possible the use of sulphur dioxide, ammonia, and methyl chloride under less complicated restrictions than those now imposed by the code, and also voiced the charge that the ordinance as it now stands gives a virtual monopoly on refrigerants for air-conditioning use to certain du Pont subsidiaries.

E. T. Williams, consulting engineer, led the forces that are seeking to impose more stringent phraseology in those provisions of the code which govern the use of the Freon group of refrigerants.

W. W. Rhodes of Kinetic Chemicals, Inc., the du Pont subsidiary which manufactures the Freon refrigerants, defended the code as it is written and claimed that there is no monopoly created for Freon by virtue of any code, but that the refrigerant has won its place by certain inherent qualities.

The contention made by the Eustis brothers was that in the indirect open spray type of refrigerating system an alkaline brine used where sulphur dioxide is the refrigerant and an acid brine for ammonia systems would serve to adsorb any of the direct expansion refrigerant that should pass into the cooling chamber, killing the irritant effect and thus eliminating any hazard.

The statement was also made by these executives of the Virginia Smelting Co. that the "codes as now written tie the air-conditioning engineer hand and foot to a group of refrigerants manufactured by a virtual monopoly."

Mr. Rhodes of Kinetic Chemicals and J. H. Holden of Carrier Engineering Corp. both declared that the code conforms with the latest Underwriters' Laboratories report on refrigerants, which forms a basis for the provisions incorporated in the ordinance, they pointed out.

Mr. Williams offered suggestions for alteration of a number of provisions in the code to emphasize the hazards which may be present when Freon breaks down in the presence of a fire.

Opposition was also voiced to the part of the code which would handicap the sale of electric refrigerators and unit air conditioners in department stores, by calling for their operation in rooms shut off by tight partitions. Robert Bryan, representing Frigidaire Corp., led the fight on this point, and a number of written protests on this provision were read into the records.

An ice industry representative declared that no direct expansion refrigeration systems of any size should be allowed to operate in a department store.

Considerable controversy also developed over the provisions relating to refrigerating machinery rooms and to placement of refrigerant piping, representatives of the commercial and industrial divisions of the refrigeration industry feeling that the ordinance as now written is too restrictive in this matter, with the result that unnecessary expense will be entailed in the installations.

One of the most bitter struggles that will apparently develop out of the code hearings is on the melting point of solder for refrigerant piping joints. The provision dealing with this subject was changed in the final proposed draft of the code so as to provide for a melting point of not less than 400° F. instead of 1300° F.

Proponents of the so-called "high temperature" solder criticized this change severely at last Wednesday's hearing. The 400° F. melting point was just as vigorously defended, however, by other interested parties, in-

(*Concluded on Page 4, Column 1*)

Finance Companies Oppose Extension Of FHA Plan

NEW YORK CITY—The National Association of Sales Finance Companies will oppose efforts to have Congress extend the Federal Housing Administration's modernization credit plan beyond its expiration date, April 1, 1936, John R. Walker, vice president of the association, stated recently.

This association, whose membership is comprised of financing companies representing approximately 85 per cent of the country's business, bases its opposition on the contention that the FHA policy is an "economic fallacy," and "demoralizing to established credit practices," states Mr. Walker.

Merchandise Men to Talk on Appliances

CHICAGO—Departmental merchandising of electrical appliances is among the subjects which five leading department store houseware merchandisers will discuss in the round table clinic which will be held in conjunction with the First International Housewares Show in the Merchandise Mart here, January 6 to 18.

Kenneth Collins, executive vice-president of Gimbel Bros., who heads the group, will speak on "Getting More Net Profits Out of Housewares."

Other speakers in the clinic group are: E. W. Shaw, of the May Co., Cleveland; C. W. Amos, housewares manager for Scruggs-Vandervoort-Barney, St. Louis; R. W. Fogel, Crowley Milner Co., Detroit; and George Brown, general housewares manager, Marshall Field & Co., Chicago.

Plans revealed by manufacturers who will exhibit products in the show indicate that both electric refrigeration and air-conditioning will be given wide emphasis in the electrical group, states T. J. Reed, general manager of the show.

General Electric Co. will exhibit single unit air-conditioning equipment which can be sold in department stores and in home-furnishing stores.

Crosley Radio Corp. plans to show its air-conditioning unit which can be adapted to any type of bed.

Six refrigerators with cabinets finished in a modern design of black, white, and chromium will be featured by the Sanitary Electric Corp., in its display.

Hines Forms New Firm To Handle G-E Line

BALTIMORE—The Hines Co., distributor of General Electric appliances here, has been succeeded by Maryland Appliances, Inc. Dorsey Hines, founder and former president of the Hines Co., continues as head of the new distributorship.

Officers of the new company, besides Mr. Hines are: H. R. Keefer, secretary-treasurer, and Miss Evelyn C. Plitt, assistant secretary. The positions had been vacant since the resignation of Arthur Johnson, vice president and acting secretary-treasurer, in 1933.

No personnel changes have been made. C. E. Weitzel retains his position as acting general manager and sales manager of the wholesale and retail divisions, as does H. H. Zimmerman, manager of the commercial division, and Louis Young, who is in charge of home laundry equipment.

Management and policy of the new firm will be the same as that employed in the Hines Co.'s operations, Mr. Hines states.

Niagara Dealers Elect 22 New Directors

BUFFALO—The Electrical League of the Niagara Frontier elected 22 new directors at its annual meeting held here recently. The board will meet in January to elect officers. New directors include:

Theodore L. Anderson, Edward T. Ball, Willard T. Bettendorf, George H. Calkins, Thomas W. Connette, Harry P. Fillmore, Robert D. Glennie, James K. B. Hare, William E. Henning, G. Reid Knisley, Raymond W. Mitchell, John L. Murphey, Karr Parker, George J. Reichert, James D. Robertson, Carl J. Rohrer, Herbert I. Sackett, Edward F. Strong, Richard Wahle, Harold R. Waldron, Lloyd A. Woolley, and Harry B. Zimmerman.

Makers of Parts Complete Plans of Organization

Jobbers List Objectives; Constitution & By-Laws Are Adopted

CHICAGO—Refrigeration Supplies and Parts Manufacturers Association, the idea for which was born at the open meeting of parts manufacturers and supply jobbers held Oct. 23 at the offices of ELECTRIC REFRIGERATION NEWS, was officially organized at a meeting last Tuesday here.

A constitution and by-laws were drawn up, officers elected, and the association's plans and objectives for creating better industry practices were outlined and discussed. Frank J. Gleason was named executive secretary with offices at 2707 David Stott building, State and Griswold Sts., Detroit. Membership fee was set at $50 a year.

Meeting with the parts manufacturers last week was a committee from the National Refrigeration Supply Jobbers Association. The jobbers committee offered a series of objectives which they hope the parts manufacturers will attain in their relations with jobbers, and in turn they expressed themselves on the way in which they intend to cooperate with the Refrigeration Supplies and Parts Manufacturers Association.

An expression was made by the parts manufacturers that any decisions or activities which they decide upon shall be thought through from the standpoint of all phases of the distribution of their product; this includes the jobber, service man or dealer, and ultimate user. The suggestions made by the jobbers will be given consideration at an early meeting, officers said.

One of the prime objectives of the Refrigeration Supplies and Parts Manufacturers Association will be the exchange of views on problems of mutual interest among members. In particular it is planned that members will exchange, through the office of the association, information on sales policies of common interest.

To facilitate this plan, a committee will be appointed with one member representing each of the various groups of products represented in the association, and this committee will try to correlate sales policies of all the members so that there will be some sort of uniform practices obtained.

This does not mean, the officers pointed out, that any attempt will be made to tell the members how to run their business, or to get them to change existing and long-standing policies.

The definition of a jobber, formulated by parts manufacturers at the Oct. 23 meeting, was discussed at last week's session, with the members in agreement that the definition should stand as originally drafted.

J. D. Colyer of Wolverine Tube Co. was elected president of the Refrigeration and Parts Manufacturers Association, John S. Forbes, Kerotest Mfg. Co., vice president; and H. V. Higley, Ansul Chemical Co., secretary-treasurer. The following will constitute the board of directors of the association:

K. B. Thorndike, Detroit Lubricator Co.; C. M. Brown, Tecumseh Products Co.; Edward Gammie, Victor Mfg. & Gasket Co.; R. W. Kritzer, Peerless Ice Machine Co.; F. U. Webster, Cutler-Hammer, Inc.; F. L. Riggin, Jr., Mueller Brass Co.; Charles W. Johnston, Virginia Smelting Co.; D. H. Daskal, Perfection Gear Co.

On the committee of the National Refrigeration Supply Jobbers Association who met with the manufacturers were H. S. McCloud, president; J. M. Oberc, secretary; and Irving Alter, R. H. Spangler, and Herman Goldberg. The objectives which they outlined are as follows:

1. Manufacturers group to recognize Refrigeration Jobber group as an essential link in the chain of refrigeration supply distribution.

2. Manufacturers to publish and maintain resale prices, and establish distribution classifications as follows:

(a) National Manufacturers—Jobbers

(b) Small Manufacturers—National Chain Ice Cream Companies

(c) Distributors — Refrigeration Schools, Ice Cream Companies, Whole-

(*Concluded on Page 2, Column 1*)

Constitution and By-Laws of Association Of Parts Manufacturers Are Approved

(Concluded from Page 1, Column 5)

sale Consumers with service men on permanent payroll.

(d) Dealers—Service Companies—Independent Service men.

3. Manufacturer to set up price schedules to provide for jobber distribution, on profitable basis, to all trade classifications as outlined in suggestion No. 2, other than National Manufacturers.

Classification of Manufacturers

4. Manufacturer to adopt the following classifications for Refrigerator, Fixture, and Compressor Manufacturers:

(a) National Manufacturer: A manufacturer who distributes products nationally through established distributing organizations.

(b) Small Manufacturer: A manufacturer who distributes products locally, or in semi-national areas, direct or through distributing organizations.

5. Manufacturer to urge National Manufacturers of Refrigerators, Fixtures, and Compressors, using their products, to maintain published resale prices and price classifications in resale of these products, by them, to their Distributor organizations.

Price Maintenance

6. Manufacturer to insist that jobbers, not affiliated with Jobbers' Association, maintain established and published resale prices and price classifications.

7. Manufacturer to adjust existing price arrangement with small manufacturers, distributors, refrigeration schools, ice cream companies, service men, dealers, service companies, wholesale consumers with service men on permanent payroll, to conform with published resale prices and price classifications, as covered in paragraph No. 2.

8. Manufacturers group to supply Jobbers with roster of their Association membership.

9. Manufacturers group to attempt to bring into their association Belt Manufacturers, Coil Manufacturers, and any other manufacturers not at present meeting with manufacturers group.

10. Manufacturers group to appoint a committee to meet with Jobbers Manufacturers committee.

Steps for Jobbers to Take

The Jobbers wish to suggest, on the other hand, the following steps in tneir efforts to cooperate with the Manufacturers group:

1. Jobbers to cooperate with Manufacturers group in carrying out all National policies adopted by this group.

2. Jobbers to maintain Manufacturers' published resale prices and price classifications.

3. Jobbers to carry an adequate stock of each manufacturer's line handled.

4. Jobbers to distribute catalogue, either published or made up of Manufacturers' catalogue sheets, subject to Manufacturers' approval.

5. Jobbers to actively promote sale of each manufacturer's products handled.

6. Jobbers to supply Manufacturers with a roster of Association membership.

7. Jobbers to make drive for 100% membership.

8. Jobbers to appoint a committee to meet with Manufacturers Jobbers committee.

Constitution

Article I.

The name of this Association shall be "Refrigeration Supplies and Parts Manufacturers Association."

Article II.

The purpose of this Association is to collect and disseminate information of value, study the problems of distribution of manufacturers of refrigeration parts and supplies and to promote a spirit of cooperation amongst its members for the benefit of all concerned.

Article III.

Membership in the Association shall be limited to persons, firms or corporations actively engaged in the manufacture and distribution of refrigeration parts and supplies.

Article IV.

Members shall pay such dues and enjoy such privileges as the by-laws of the Association may prescribe. Each member may be represented at the meetings by one person or more and be entitled to one vote.

Article V.

Subject to the direction of the members given by resolution adopted at any regular or special meeting, the management of the Association shall be composed of a President, Vice President and Secretary-Treasurer and Board of nine (9) members. The term of office of President, Vice President and Secretary-Treasurer shall be for a period of one year. The Board of Directors shall be elected—one-third for a term of three (3) years; one-third for a term of two (2) years and one-third for a term of one (1) year. At each annual meeting thereafter one-third of the Board shall be elected to serve a term of three years.

The President shall preside at all the meetings of the Association and, subject to the direction of the Board of Directors, shall be its executive head.

During the absence or incapacity of the President, the Vice President shall perform the duties of the President.

The Secretary-Treasurer shall have the custody of the funds and assets of the Association and shall keep for it proper books of account, which shall at all times be open to the inspection of any director or member of the Finance Committee of the Association.

The Secretary-Treasurer shall disburse the funds of the Association under the direction of the Board of Directors.

The Secretary-Treasurer shall have such duties as the Board of Directors may prescribe.

The Secretary-Treasurer shall be required to furnish a Fidelity bond in such an amount as may be determined by the Board.

The President, Vice President and Secretary-Treasurer shall receive no salary or other compensation for their services.

The Directors shall employ such help as may be necessary to conduct the functions of the Association.

The directors shall fill vacancies occuring in the ranks of the offices, for the unexpired term, provided for by this article.

Article VI.

The annual meeting of the Association shall be held in the month of October of each year, the date, hour and place of said meeting shall be hereafter fixed by the Board of Directors and special meetings may be called and held at such time and place as herein provided by the by-laws.

Article VII.

Amendments

Suggestions for amending, supplementing or repealing this constitution, if approved at any annual or special meeting of the Association by the affirmative vote of the majority of the members present at such meeting and by representatives or proxy, shall be forthwith submitted to all the members and notice mailed to them by the Secretary-Treasurer and by a written vote taken thereon by mail. If two-thirds of the votes received by the Secretary in each case on or before the date specified in such notice, which date shall not be less than thirty (30) or more than sixty (60) days from the date of the mailing of such notice, shall be in favor of the proposed amendment, supplement or repeal, the directors shall declare and notify the members that it has been adopted; otherwise it shall be deemed defeated and the members notified by the directors accordingly.

By-Laws

Article I.

Members. Every application for membership in the Association must be made to the Board of Directors in writing accompanied by check for annual dues. Upon a majority vote of the Board of Directors the applicant shall immediately become a member of the Association.

In connection with application for membership the applicant, if a firm or corporation, shall file a written statement naming the person who will act as its executive representative. Any member may change its executive representative at any time by written statement filed with the Board.

Any member may resign at any time, provided that at the time such member is not indebted to the Association.

By vote of seven (7) members of the Board of Directors any member or representative may be expelled, provided that such member or representative shall first have reasonable opportunity for a hearing before the Board.

The membership of any member by or against whom proceedings in bankruptcy or proceedings based on insolvency are instituted shall immediately terminate.

The Board of Directors may at its discretion reinstate in full membership in the Association any former member whose membership is terminated for any cause upon the payment of all Association charges unpaid and having accrued in the interim.

Article II.

Meetings. Special meetings of the Association may be called by the President or by a majority of the Directors or by not less than twenty-five (25%) per cent of the members of the Association. At least 7 days written notice shall be given by mail of every special meeting.

Unless otherwise specified by the Board of Directors, all meetings shall be held at the Association's office in Detroit.

Twenty-five (25%) per cent of all members in good standing shall constitute a quorum.

Article III.

Directors. The Board of Directors shall hold a meeting immediately after the close of every annual meeting of members of the Association and shall hold meetings at such other times as the Board may fix or as may be called by the President or a majority of the Directors.

All directors' meetings shall be held at the Association's office in Detroit unless the Board shall transfer the office to some other place or shall appoint some other place for the holding of directors' meetings.

No person shall be eligible for election as a Director unless a member of the Association or the executive representative of a member. Any person who ceases to be an executive representative shall thereby cease to be a Director.

At least 7 days' notice shall be given to every Director of all directors' meetings, such notice to be given by mail or telegraph.

Article IV.

Committees. The Board of Directors shall appoint an executive committee, finance committee, membership committee and other committees with such membership, powers and duties as the Board may fix from time to time. The Board may appoint a nominating committee whose duty it shall be to submit to each annual meeting of the Association a slate of nominees for all offices which are to be filled at such meeting.

Article V.

Executive Secretary. The Directors may elect an executive secretary at such salary and for such length of time as they see fit, not exceeding one year at a time, and may delegate to him the management of the Association's office and the general oversight of the routine and clerical work of the Association and may prescribe such other powers and duties for him as they see fit.

Article VI.

Funds. Until the Board of Directors shall order otherwise, all funds of the Association shall be deposited in the Detroit Savings Bank, Detroit, Michigan, and under the direction of the Secretary-Treasurer, as provided for in the Constitution shall be subject to withdrawal only by checks signed by the executive secretary and counter-signed by the president of the Association.

Article VII.

Fees and Dues. The annual dues of each member shall be $50.00. All dues shall be paid annually in advance on the first day of December in each year.

If any member neglects to pay his dues within sixty (60) days after the same shall have become due, such member shall as a result of such neglect be automatically suspended from all rights and privileges of membership.

The membership of any member suspended as aforesaid who fails to tender all delinquent dues and apply for reinstatement within thirty (30) days after suspension, shall automatically terminate unless the said period of thirty days shall be extended by the Board of Directors.

Article VIII.

Amendments. These by-laws may be amended by a majority vote at any annual or special meeting of the Association or at any meeting of the Board of Directors.

Companies Represented

Companies represented at the meeting, the majority of which became affiliated with the association, were as follows:

Detroit Lubricator Co., C. J. Swan, K. D. Thorndike; Automatic Products Co., R. W. Johnson; Fulton Sylphon Co., G. F. Price; Fredericksen Co., Karl Agricola; Square D Co., Ivan Corcoran; Cutler-Hammer, Inc., F. U. Webster; Kerotest Mfg. Co., John S. Forbes, Mr. Taylor.

Perfection Refrigeration Parts Mfg. Co., D. H. Daskal; Wagner Electric Co., Mr. Webber; Mueller Mfg. Co., F. L. Riggin, Jr.; Henry Valve Co., C. V. Gary; American Brass Co., Mr. Hocking; Imperial Brass Co., Mr. Beckley.

Automatic Reclosing Circuit Breaker Co., E. L. Graff; Victor Mfg. Co., Edward Gammie; York Ice Machinery Corp., Mr. Smith; du Pont Co., R. & H. Chemicals Dept., Thomas Coyle; Ansul Chemical Co., H. V. Higley; United Wire & Supply Co., Mr. Dittmeyer; Bunting Brass & Bronze Co., Mr. Scudder.

Sales Idea of the Week

By V. E. (Sam) Vining, Director of Department Store Sales, Westinghouse Electric & Mfg. Co.

The pawn-broker is the world's greatest salesman. He is a fundamentalist.

He eliminates so many non-essentials.

You pass his store day after day. His windows leave no doubt as to his business. He, himself, is standing in his doorway—calmly *exposing himself to business.*

He seems uninterested in the passing crowds. He rolls his cigar in his mouth with almost insulting indifference. Every posture expresses an indolence all its own.

You have passed his store a thousand times and he has never even looked at you, has never even seen you.

But—*I dare you—PAUSE* in front of his window.

See the change in your "single minded" friend. You are no longer a part of the passing crowd—*you are a Prospect.*

And, please, when you wake up inside the store, and just before you take your last gasp of breath—as you sink into an hypnotic sea of sales talk—take another look at the door.

His partner is standing there now—

Waiting—waiting—waiting—

Doesn't it do your heart good to see such singleness of purpose?

You and I have been striving for years to be brilliant, to be clever, and it's dollars to doughnuts we'll never own a bank—or a "pawn shoppe."

Quota Busters Club Is Formed by Distributors

MANSFIELD—Feature of the Westinghouse distributors' meeting held here recently was the formation of a new honorary, the Distributors' Quota Busters Club, with a charter membership of 52. Election to the organization, open only to distributors, is dependent on attaining a specified percentage of quota.

Officers of the club are elected on their sales records. Highest position, that of Rancher, goes this year to J. H. Fisher, Westinghouse Electric Supply Co., Allentown, Pa., who made 195 per cent of quota.

Other officers, also chosen on their 1935 records, are:

Ranch Foremen: D. C. Pence, Los Angeles; W. M. Jewell, Richmond, Va.; and Mr. Fisher.

Ranch Wranglers: N. D. Abell, Monroe, La.; T. D. Sunier, Salt Lake City; and M. M. Stampfli, Reno, Nev.

Ranch Ropers: H. M. Moock, Canton, Ohio; J. E. Sweeney, Omaha; and F. G. Waite, Phoenix, Ariz.

Hamilton Beach to Build 3-Story Addition

RACINE, Wis.—To increase its manufacturing facilities, the Hamilton Beach Co., Racine division of the Scoville Mfg. Co., has begun construction on a three story addition to its plant, which will provide 40,000 sq. ft. of additional floor space.

Products manufactured by this company include ice cream freezers for use in household refrigerators, fractional horse power electric motors, household appliances, and soda fountain and bar equipment.

● YOU must see a Copeland Commercial Refrigeration unit in production to really appreciate why it performs so smoothly after years of continuous use. Bearing surfaces are diamond-bored. Cylinder walls are micro-honed. Moving parts are surfaced to mirror smoothness. Buyers of commercial refrigeration equipment expect trouble-free performance. Copeland precision manufacturing standards make sure they will get it.

A few territories still available. Write or wire us today.

COPELAND REFRIGERATION CORPORATION

Manufacturers of a complete line of Household and Commercial Refrigeration
Holden Ave. at Lincoln DETROIT, MICH.

Copeland DEPENDABLE Electric REFRIGERATION

LARKIN COILS for... AIR CONDITIONING

VIRGINIA SMELTING CO. WEST NORFOLK VIRGINIA
EXTRA DRY ESOTOO LIQUID SULPHUR DIOXIDE
V-METH-L VIRGINIA METHYL CHLORIDE
131 STATE ST. BOSTON—78 BEAVER ST. N. Y.

BRUNNER
Send for the New
REFRIGERATION CATALOG
Eight Models of Compressors
Forty-one Models of Highsides
from 1/6 H. P. to 15 H. P.
BRUNNER MANUFACTURING CO.
UTICA, N. Y.

FHA Repair Loans in Nov. Hit New High

WASHINGTON, D. C.—Modernization and repair notes reported to the FHA by banks and other financial institutions for insurance under terms of the National Housing Act reached a new high in November, totaling $31,051,673.

The notes are for improvement of properties of all kinds and for purchase and installation of certain types of machinery and equipment.

Previous high mark was set in September, when financial institutions loaned $30,403,178. November figures indicate that the seasonal decline in construction has been reversed by the modernization programs.

Mortgages selected for appraisal during the month totaled $24,058,470. Current total for both Title I and Title II of the National Housing Act is $459,252,741.

G-E Range Sales Up In November

CLEVELAND—Sales of General Electric ranges in November of this year were 200 per cent of those for the same month of last year, declares J. R. Poteat, range manager for the company's specialty appliance sales division.

A number of range product meetings have been staged by Poteat and his assistant, Fred Cuffe, among utility employees. The most recent were for employees of the Illinois Power & Light Co. at Champaign, Spring Valley, and Galesburg, Ill., and for employees of the Illinois Northern Utilities Co. at Dixon, Ill.

The range section won first place among the various product sections in the recent fall sales campaign. Range sales led all other products in percentage of campaign quota.

Majestic Creditors Will Receive $500,000

CHICAGO—Creditors of the Grigsby-Grunow Co., former manufacturer of Majestic refrigerators and radios, will receive payments amounting to $500,000, as authorized by Referee Wallace Streiter. Payments include 15 per cent for bondholders and 9 per cent for general creditors.

Checks will be on their way to the 1,400 creditors very shortly, stated Frank M. McKey, receiver. Last January a 25 per cent payment was made to bondholders, and 16 per cent to general creditors.

$46,000 Orders Placed For Appliances at Milwaukee Show

MILWAUKEE—Of the half-million dollars worth of orders placed at the Milwaukee and Wisconsin exposition held in the Auditorium here, Nov. 15-24, $46,000 represented sales of household equipment, including refrigerators, washing machines, kitchen appliances, and vacuum cleaners.

Attendance at the show totaled 140,316. Visitors from Denmark, South Africa, China, 14 American states, and Canada were registered.

Atkinson New President Of Brooklyn Dealers

BROOKLYN—Russell A. Atkinson was elected president of the Electrical Appliance Dealers Association of Brooklyn, Inc., an affiliation of cooperative Edison dealers, at the group's regular meeting here recently. He succeeds Martin A. Tarzain.

Following the election, representatives from Brooklyn Edison Co., Manning-Bowman Co., Lafayette Electric Corp., Noma Electric Corp., and Standard Electric Range Co. spoke on selling plans and new merchandise which dealers may obtain through a cooperative arrangement with the Brooklyn Edison Co. The utility does no direct appliance selling.

Ice Refrigerators Will Be Used in Housing Projects

LOUISVILLE—Of the total number of refrigerators to be used on FHA housing projects, between 33 and 50 per cent will be ice-consuming units, declares W. H. Cloud of Progress Refrigerator Co. here. Mr. Cloud has spent considerable time in Washington working with FHA officials.

'New American Home' to Use 85% of Space

DALLAS—Built like a refrigerator, the "New American Home" here of the General Electric Co. and the Electric Household Appliances, Inc., local G-E distributor, will utilize 85 per cent of the available space instead of the 65 or 70 per cent used in the average home, declare its builders.

Sweet of line...

BUT CAN SHE TAKE IT?

Sleek hull, slim mast and pressing canvas make a sight to thrill landsman as well as sailor. But when scud turns to rough water, more than looks is needed. Then is the time for hoping that the hull has the real stuff. Then you wonder if the builder has used good, sound materials as well as smart design.

It's the same with sailing the sea of Selling. A flashy contender gets the hand at the start. But the one with real quality reaches port, year after year.

in a refrigerator

No one would deny that the shiny surfaced, extra-convenient refrigerator of today is an improvement over that of 1928. The visual improvements are a decided advantage to manufacturer, distributor and dealer when selling the housewife.

But the refrigerator needs something besides looks and convenience. This is frequently overlooked by the dealer and the oversight is costly. For a refrigerator must have quality . . . the quality of permanent performance.

It is for this reason—**if performance is to be lasting**—that quality insulation must be used. Insulation must not be specified on the basis of ability to fill a certain space for so many cents; but on the basis of doing a specific insulation job for so many cents for so many years.

Dry-Zero Insulation makes a continual saving of 30 cents to $2 a month in running costs

Dry-Zero Insulation gives an advantage to the refrigerator manufacturer, distributor and dealer. It gives them one of the strongest of sales points—that a Dry-Zero insulated box costs less to run.

Dry-Zero Insulation saves electric current. Tests have shown that the saving in k.w.h. runs as high as 30 cents to $2 a month, every month of the year. This is an important saving to any housewife.

A complete explanation of this k.w.h. saving is contained in our report entitled "Effect of Insulation on Refrigerator Operation." A copy will be sent to you at your request.

DRY·ZERO
REG. U.S. PAT. OFF.
THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

DRY-ZERO CORPORATION
222 North Bank Drive, Chicago
687 Broadview Ave., Toronto

Refrigerant & Solder Questions Argued at 2nd Code Hearing

(*Concluded from Page 1, Column 3*)
cluding representatives of concerns that will be making installations.

The following is a general resume of the more important points covered at the Dec. 11 hearing. No attempt has been made to give the verbatim statements of those speaking at the hearing.

E. T. Williams, consulting engineer, New York City, Proposed that Section 1 (n), the definition of a non-flammable refrigerant, be changed to read as follows:

"Any refrigerant that will not form a flammable mixture with air, in the presence of a source of ignition, at a temperature below 100° F., or that will not propagate a flame, or that will not decompose into an irritant or toxic gas when contacting a flame, or a metal surface the temperature of which is below 900° F."

Mr. Williams also suggested that the following be added as the definition of an "unstable refrigerant."

"Any refrigerant which will decompose into an irritant at temperature of less than 900° F."

Mr. Williams objected to the provision in the present definition that a non-flammable refrigerant shall form only weakly combustible mixtures at temperatures above 100° F. as being too indefinite.

Definition of Weakly Combustible

C. K. Michaels, engineering inspector for the Bureau of Combustibles, and drafter of the code. Definition says that weakly combustible mixtures shall not be formed at temperatures less than 100° F. That is definite.

Commissioner Giaccone: What is "weakly combustible?"

Mr. Michaels: It means that the mixture is such that it won't support combustion under ordinary conditions.

Commissioner Giaccone: Then Mr. Williams' definition is designed to put Freon in the flammable and irritant class under certain circumstances such as an open flame?

Mr. Williams: Yes, it is meant to bring out the dangers of those refrigerants.

Commissioner Giaccone: Then you can't say that those refrigerants are unqualifiedly non-irritant and non-flammable.

A member of the Board: When is Freon inflammable?

Mr. Williams: It isn't flammable but it breaks down into other gases in the presence of a flame.

Commissioner Giaccone: Then your stand is inconsistent.

Mr. Williams: No. Some place in the code there should be a provision telling about the decomposition of the Freon group of refrigerants.

A. H. Nuckolls, Underwriters Laboratories: To further define weakly combustible you might say that "in a box kept at 110° F. with a pressure not over a certain limit, the mixture shall not propagate a flame at high concentrations, and then slowly. By high concentrations I mean 20 per cent or more.

If you try to qualify it by saying whether or not it will break down, you get into complications, as even CO_2 will break down at high enough temperatures.

Our tests have demonstrated that Freon will not burn even in oxygen.

Classification of Refrigerants

Commissioner Giaconne: Does any one object to Section 218, classifying refrigerants as irritant and flammable, or non-irritant and non-flammable?

James Cordley, Cordley & Hayes Co.: Methyl chloride is not an irritant. It acts as a drug, but it is not irritant.

Mr. Michaels: The definition of "irritant" in the code is such as to cover toxicity.

Mr. Cordley: The definition leads to a misunderstanding of the properties of methyl chloride.

Mr. Halsey, Knickerbocker Ice Co. Objected to the definition of irritant to cover toxicity.

Mr. Williams: Methylene chloride (Carrene No. 1) is more irritant than methyl chloride. Results of tests have demonstrated this. In tests with guinea pigs it took a longer time to kill the pigs with methylene chloride than with methyl chloride.

Mr. Michaels: If there is an open flame in the room methylene chloride may become an irritant, otherwise it is not. The same is true of Freon. We've had pigs and rabbits in 40 per cent concentrations of Freon and nothing happened. The code affords the proper precautions with respect to these refrigerants.

Commissioner Giaconne: Mr. Williams, did you use an open flame in these tests?

Mr. Williams: How about it, Mr. Michaels?

Mr. Michaels: The test was probably conducted with the refrigerant in high concentrations.

Mr. Williams: With a 5 per cent concentration of methylene chloride the first animal was killed in one hour, 42 minutes, while with an 8½ per cent solution of methyl chloride the first animal didn't die for three hours and 30 minutes.

J. H. Holden, Carrier Engineering Corp.: When there is a flame, there is a break-down, and a danger resulting from the gases formed. However, the code is based on Underwriters Laboratories tests, and by the very fact a "test" basis is given. You can prove almost anything by tests. But you must have some basic tests.

W. W. Rhodes, Kinetic Chemical, Inc.: The code is consistent, from the standpoint of the classification of refrigerants, with the latest Underwriters Laboratories report.

W. W. Ogier, Pure Carbonic Corp. The Underwriters report shows that tests were made in an enclosed room. This is not normal, as ordinary ventilation would be a factor. This serves to work a discrimination against CO_2. It is also discriminated against in other parts of the code, apparently because the engineers drawing it up do not think that it has a practical application in air conditioning.

Recognition of Sulphur Dioxide

Mr. Eustis, Virginia Smelting Co. I want to offer an amendment to Section 219 (c) which would qualify sulphur dioxide for use in air conditioning when it could be shown that the refrigerant, if it escaped into the brine, would be absorbed by a brine so constituted as to adsorb twice the amount of the refrigerant in the system.

We are not criticizing the classifications on irritant and flammable refrigerants, but we do feel that sulphur dioxide and methyl chloride are too greatly restricted.

As the code is now written the air-conditioning engineer is tied hand and foot to a group of refrigerants manufactured by a virtual monopoly.

Even methylene chloride (Carrene No. 1) is manufactured by a subsidiary of the du Pont Company.

There should be provision in the code for the use of methyl chloride and sulphur dioxide in a system of the single indirect spray type system and the single indirect closed surface method if it is combined with the use of a cooling liquid which will eliminate the hazards.

Double Indirect Type Systems

Mr. Michaels: Section 219 (11) of the code will allow the use of such refrigerants. (This permits the use of flammable and irritants in the double indirect type of system.)

Commissioner Giaconne: Doesn't such a method lead to greater cost and other disadvantages? What would an engineer do if given a choice between the two type of systems?

Mr. Michaels: There might be cases where it would be just as inexpensive and maybe more advantageous, as in the case where a cold storage warehouse nearby might supply the brine.

Mr. Eustis: It all comes down to a cost and efficiency basis. Under the double indirect closed surface method three different steps in heat transfer are required, and this makes such a system inefficient, and bars it from a competitive basis with other systems.

Commissioner Giaccone: What about the scientific value of this theory, Mr. Michaels?

Mr. Michaels: The theory may be all right, but it is a laboratory proposition, and has not been proved in practice. There is a chance that the brine would become super-saturated with the gas and therefore dangerous.

Mr. Eustis: Our amendment says that the brine must be so constituted as to adsorb double the total volume of the refrigerant gas, so there would be no danger of super-saturation.

Mr. Michaels: It would be necessary for an engineering inspector to check on the strength of the solution and on other factors in such a setup.

Mr. Eustis: The theory which we have advanced is being put in practical use in the chemical field today, in fact it is being used in plants where tons of sulphur dioxide are handled.

Monopoly Charge Discussed

Mr. Rhodes: I would like to discuss the subject of monopoly which has been brought up at this hearing. Kinetic Chemicals, Inc. has patents on certain refrigerants, it is true, but there is no code which makes the use of these chemicals obligatory in air conditioners.

It is a significant fact that manufacturers are using these refrigerants in the systems they build, not because of codes, but because they want safety. Companies using it include General Electric, Westinghouse, Frigidaire—

Mr. Peterson, Calco Chemical Co.: General Electric uses sulphur dioxide in some of its units.

Mr. Rhodes: We sell General Electric sulphur dioxide also and it is used only in household units.

Mr. Eustis: I have a General Electric air conditioner installed in my home and it uses methyl chloride.

Commissioner Giaccone: We can have no more of this discussion which deals with monopolies and trade wars. We must discuss the other provisions of the code.

Restriction on Piping

P. S. Lyon, General Electric Air Conditioning Corp.: The provision which bars the piping of refrigerant from one room to the next in public buildings is unnecessarily restrictive.

Mr. Michaels: Unless you put in some kind of restrictions, the installers would run piping all over the place, creating many different kinds of hazards.

Mr. Williams: I would like to amend Section 219 (1 h) so as to make it clear what constitutes a continuous flame, and particularly with reference to whether or not an alcohol lamp constitutes an open flame.

Mr. Michaels: We tested these refrigerants in a room with a bunsen burner and nothing happened.

Mr. Lyon: The definition of a "residence building" is such that it includes one and two family dwellings. An exception should be made so that refrigerant tubing can be run to the second floor of a two-family dwelling.

A representative of the New York Tenement House Department: State legislative enactments cover this point. The definition of a residence should be such that it cannot include a building over two stories in height.

H. V. Higley, Ansul Chemical Co.: In Section 219 (2 g) all sense of comparative values in safety is lost sight of by allowing a direct expansion system using 500 lbs. of a qualified refrigerant in a residence building.

Commissioner Giaccone: There is no inconsistency in 219 (2 g). You may object to it on the basis of discrimination, but there is no inconsistency.

Mr. Bump, American Institute of Meat Packers: Section 219 (3 e) should be amended by inserting the term "wholesale meat distributors" after the term "meat packers." Also in this same section the provision which restricts piping of refrigerant when more than 100 people are employed above the first floor of a business building is unnecessarily restrictive. Experience has not demonstrated any undue hazard in similar installations which have been in operation over a period of years.

Mr. Rosemaron, Knickerbocker Ice Co.: There is no point to Section 219 (3 f) which allows a refrigerating system employing not more than 20 lbs. of refrigerant to be operated in a department store for demonstration purposes. There is no need for putting a system with 20 lbs. of refrigerant in operation in a department store. The whole clause should be stricken out.

Robert Bryan, Frigidaire Corp.: The way paragraph 219 (3 f) is now written, making it necessary for unit systems to be operated in rooms in department stores shut off by tight partitions, it would practically prohibit the sale of refrigerators in department stores. The paragraph should be rewritten so that the sale of refrigerators in department stores may be continued.

Mr. Peterson: Section 219 (4) should be amended to allow the use of brine in the indirect open spray method of refrigeration as described in the code.

Tenement House Department Representative: Refrigerating machinery rooms must be provided with fire doors. Also, it should be so ventilated that odors from such rooms will be carried out without causing a nuisance.

Refrigerating Machinery Rooms

Mr. Lowell, Kelvinator Corp.: The provision with regard to refrigerating machinery rooms makes it unduly difficult to install units for places like multiple markets, where tenants engaged in different kinds of business each have their own refrigeration system.

As now written, the code prevents the putting up of partitions of less than ceiling height around each machine. The code could be easily changed to allow this, and proper ventilation from the one big room in which all the units were placed could still be properly obtained.

Mr. Lyons: The provision which prohibits machinery rooms from opening on to corridors is too restrictive.

Electric Heaters in Freon Rooms

Mr. Rosemaron: What about the use of electrical heaters in rooms where Freon is present in a refrigerating system?

Mr. Rhodes: Underwriters Laboratories tests show that in the presence of electrical heaters Freon does not decompose.

Mr. Nuckolls: Tests were made with all kinds of heaters in sealed rooms. With the coils in the heaters at white heat, 1,200° C., there was just a very little decomposition of the refrigerant. It must be remembered that in tests with an electric heater, as contrasted with tests with hot metals in a closed vessel, the gas doesn't stay "on" the metal, but is continually being carried around it and away from it by convection currents.

Mr. Williams: Tests made by the Electrolux company show that there was a little breakdown of Freon when the metal was heated to 1,000° F. and a complete breakdown at 1,300° F. It was also shown that certain metals act as a catalytic agent.

Mr. Roth, Chase Brass & Copper Corp.: Section 224 (b) should be amended by inserting the word "wrought" for "forged."

Mr. Minor, E. I. du Pont de Nemours Co.: We believe that the code is satisfactory as it stands. We have no further suggestions.

Refrigerant Question Again

Mr. Higley: Proper cognizance has not been taken of the hazards that are obtained when Freon breaks down.

Mr. Michaels: When the fire hazard is taken into account, the proper precautions are taken in all parts of the code.

Mr. Rhodes: Hydrochloric acid and hydrofluoric acid are soluble in a hose stream, hence there is no danger to firemen in case of a fire in which Freon is involved.

Commissioner Giaccone: This tendency to "stress" some one or other provision in the code isn't helping us any. The board is failing to get unbiased testimony on these matters.

Mr. Peterson: I want to reiterate the hope that a chance will be given for the use of sulphur dioxide in systems that are more simple than those now provided for in the code.

Mr. Eustis: I would like to show Mr. Michaels a practical demonstration of the adsorption of sulphur dioxide by brines.

Mr. Michaels: There have been thousands of accidents caused by sulphur dioxide and ammonia.

Mr. Eustis: New York City records show that only one death from sulphur dioxide has been recorded in the past sixteen years.

Mr. Michaels: Do you have to kill people to show that a hazard is created?

Mr. Eustis: One of the brines which we use is composed of a mixture of caustic soda and water. There has been no corrosion on containers or piping from this brine during its application in the rayon industry. The other brine is a dichromate solution which is being used in connection with sulphur dioxide in the plant operations of the Endicott-Johnson shoe company.

Mr. Peterson: Another brine with non-corrosive properties is potassium carbonate.

Mr. Michaels: In one accident ammonia escaped from the brine and knocked out 10 men.

Mr. Williams: I believe that report has been proved to be erroneous. Both water and brine will absorb ammonia.

Commissioner Giaccone: I would like to ask Mr. Nuckolls if he thinks these new brines can be used safely?

Mr. Nuckolls: Theoretically yes, but I can't know positively until they have been tested.

Mr. Michaels: Because of the fact they are on a theoretical basis, these new brines should be eliminated.

Commissioner Giaccone: We do not want to stifle an industry.

John Hamilton, New York Section, Refrigerating Machinery Association: The provision against using piping across hallways is too restrictive.

Melting Point of Solders

C. L. Keene, representing an association of insurance companies: In Section 224 (a) the last sentence permitting the use of a 400° F. solder should be changed so that the melting point will not be less than 900° F. As it now stands it adds to the danger of an installation.

Mr. Michaels: The question of the proper melting point of solder is a debatable question. I have heard both sides of the argument and am not sure which is correct.

Mr. Relkin, Mueller Brass Co.: Use of copper tubing will be handicapped if the melting point of solder is made higher than 400° F.

A representative of the Walworth Co.: The melting point should be nearer 1,000° F. It would then be in conformity with the requirements of other New York City safety ordinances.

Mr. Hamilton: A better job of soldering is possible with a lower temperature solder.

Mr. Holden: Higher temperature solder makes the job more difficult. It is also necessary to introduce acetylene or oxygen, which increases the hazards.

Mr. Roth: Higher temperature solder anneals the metal in the coil and weakens it.

L. S. Morse, York Ice Machinery Corp.: A high temperature solder causes oxidation of the pipe, which may cause considerable trouble in the refrigerating system.

Mr. Relkin: In Section 224 (a) the provision is made that no soldered joints shall be permitted of more than 2⅛ inches in diameter. This should be changed to 6⅛ inches.

Mr. Michaels: We haven't had enough experience with joints of this type to justify permitting its use on larger size piping.

The Walworth company representative: Solder used in such installations should be kept within the "safe" range which means that they should be silver alloys with a melting point over 1,000° F.

A representative of a manufacturer of silver solder: Tests conducted by the U. S. Bureau of Aeronautics showed silver solder better for all purposes.

Mr. Michaels: I can't say at this time whether one is safer than another. Question of safety has only to do with the application on refrigeration installations.

Mr. Relkin: Tests made before Chicago and Detroit city officials showed that soft solder will hold at temperatures up to 1,700° F.

Oil-Covered Filters

Mr. Hamilton: With respect to Section 224 (j), since most filters are covered with oil this provision should be given more thought.

Mr. Michaels: Filters for use in air-conditioning systems should be approved by some standard body.

J. A. Koenig, the George Nickol Corp.: With respect to Section 224 (o and n), I would like to hear some recommendations for a sound absorbtive medium for ducts. These code provisions now limit it to asbestos, which won't work. However, hair can be combined with asbestos to make an effective sound-absorbing medium. Hair is used in the subway for such purposes. Foil surfaces could also be used, as they would smother flame.

A representative of the Johns-Manville Corp.: A sound-absorbing material made from rock-wool has been approved by underwriters.

Mr. Hamilton: Section 224 (m) which says that "any combustible material of the building within 6 inches of metal ducts shall be protected by non-combustible material" works a great hardship on the installation of air-conditioning systems, especially in residences.

Mr. Michaels: The provision in Section 224 (o) which calls for automatic dampers at the outlet and inlet opening of ducts, applies to main riser ducts only.

Mr. Holden: Maximum pressures permissible under the discharge relief tables (Section 224 (f)) make it probable that unusual but not hazardous conditions would cause the loss of the refrigerant charge. I recommend that the maximum discharge pressure be set up, and the equipment tested for that pressure.

Mr. Michaels: The settings given in the table are for the purposes of safety. All conditions must be taken into consideration.

M&E EST. 1866

The Close of a Year Brings

RESOLUTIONS

FOR THE NEW YEAR

• • • to continue to build quality compressors only.

• • • to continue to sell our products at the lowest price commensurate with their performance and worth.

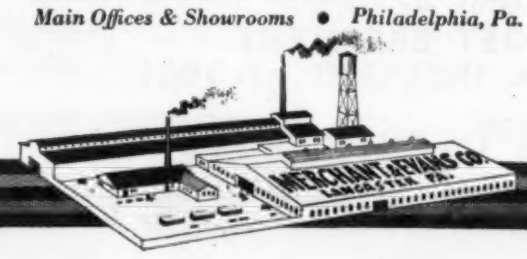
• • • to continue to give what we can to the development and betterment of the refrigeration industry.

—and to all our friends

The "Season's Greetings"

MERCHANT & EVANS CO.

Main Offices & Showrooms • Philadelphia, Pa.



Norge's 1936 Merchandising Program Will Feature Complete Line of Products

(*Concluded from Page 1, Column 2*)

18.6 per cent of the number of women interviewed expressed a positive intention of buying an electric refrigerator, this year 44.6 per cent were in that classification, of a total of 49.4 per cent who were qualified to purchase.

The same positive buying intent holds for other appliances. Ranges showed a preference of 33.4 per cent, oil burners a preference of 24.8 per cent, washers, 25.8 per cent, and ironers, new to the Norge line this year, 38 per cent.

With these figures, detailed to them by Vice President John Knapp and Gerald E. Stedman of Cramer-Krasselt Co., fresh in their minds, distributors became convinced that, far from becoming static as many had supposed, sales of electric refrigerators in 1936 will mount to the highest totals yet known.

Knapp Back in Form

Vice President Knapp ran off the convention in his usual rapid-fire fashion, despite the fact that he had been released from the hospital, where he had been confined for several days, just prior to the start of the meeting.

Monday's sessions were shrouded in secrecy, being open to distributors and Norge field men only. The 1936 line of Norge refrigerators, ranges, and heaters was shown for the first time, the former by Mr. Blood, and the last two by M. G. O'Harra, range sales supervisor.

Because of this secrecy, information regarding the 1936 refrigerator line forthcoming from the meeting was scant, indeed. Complete announcement of models, features, and price ranges will be made sometime around the first of the year. It is known, however, that the '36 models will feature added refinements in cabinet design, with a leaning more toward streamlining than was evident this year, and that units will cover the complete size and price range, both in the "economy" and "deluxe" lines.

Heating and Conditioning Unit

In the heating and air-conditioning field, Norge will feature next year a "Fine-Air" heating and conditioning unit, intended for installation in homes of the $5,000 to $50,000 class, and adaptable for summer ventilating as well as winter conditioning use.

The "Fine-Air" uses the Norge Whirlator oil burner, introduced last year, and is engineered for more economical operation as a heating unit, as well as for more complete air conditioning. It may be installed both in new homes and in old ones to replace old-type heating equipment.

Feature of the unit is the fan-driven circulation of the heated air, which is said to insure even distribution of heat, eliminating cold floors and hot ceilings, slow heating rooms and chilly corners.

Air Cleaned Six Times an Hour

Enclosed in a heavy enamel and chrome cabinet, the unit delivers heat sufficient to heat a 12 to 15 room house, say Norge engineers. It has 41 feet of heat traveling surface, where the old equipment had about 6 feet; heating efficiency is approximately 80 per cent, compared with 25 to 45 per cent for old-type heating plants.

The air is cleaned six times every hour by the "Fine-Air," which takes up floating soot particles, dust, lint, and pollen, eliminating the dead air condition frequently found in winter homes. Dry air is replaced by properly humidified, soft, natural air.

In the summer, the unit stimulates air circulation, and can be used to induce night cooling with dry recirculation. Conditioning equipment may be used with ice, cold water, dehumidifying coils, or mechanical refrigeration.

The furnace is cylindrical in design, of heavy boiler plate electrically welded. Air-conditioning equipment is over-size, slow-moving, and of heavy construction.

Heat Circulator

Another new member of the Norge family of heating products is an oil-burning heat circulator, which is available in four models, to take care of from one to six rooms.

Smallest model N-6, has a 6-in. burner and a 4-in. flue outlet, with a 3-gal. tank providing oil for 24 to 50-hour use. It is designed to heat 1,750 cu. ft. of space, with radiating surface of 15 sq. ft.

Next size, N-9, has a 9-in. burner and a 4-in. flue outlet, with an oil tank capacity for 12 to 27-hour use. Radiating surface is 16.3 sq. ft., and the unit is designed to heat 3,500 cu. ft. of space.

Model N-66 has two 6-in. burners and a 4-in. flue outlet. Tank size on this unit is sufficient for 12 to 27 hours if both burners are used; or 24 to 50 hours use on one burner. Radiating surface is 23.25 sq. ft., and the unit is designed to heat 5,000 to 6,000 sq. ft., sufficient for a three to five-room cottage.

Largest model, N-99, has two 9-in. burners and a 6-in. flue outlet. Two 3-gal. tanks are provided here, furnishing fuel for 12 to 27 hours use. Radiating surface is 35.75 sq. ft., designed to heat 8,000 to 9,000 cu. ft. of space, or four to six connecting rooms.

The heaters have cast iron frames, with cabinets finished in mahogany porcelain enamel, and burn either high grade distillates, range oils, or kerosene. Models N-66 and N-99 may be fitted with automatic pump feed, permitting piping of oil direct to burners from a basement storage tank.

Promotion and Advertising Plans

With the first two days of the convention taken up with the showing and explanation of new models for 1936, Sales Promotion Manager James E. Sterling held back his story of next year's sales promotion and advertising plans until the Wednesday sessions.

Norge plans to step out in its 1936 promotion and advertising work, Mr. Sterling told the distributors. And after they had seen the company's new six-reel movie, "The Restless Urge," their ovation was evidence aplenty that they believed him.

Written by Mr. Sterling, directed by Cullen Landis, and produced by Metropolitan Motion Picture Studios, Detroit, "The Restless Urge" is still another step in the plan of "painless selling" used so successfully by Norge last year with its "Freedom of the Shes."

Covers Complete Line

The film covers the whole Norge selling range, from refrigerators through home laundry equipment, and works in a couple of "heart throbs" for good measure.

"The Restless Urge," of course, has to do with a housewife whose new Norge refrigerator makes her so dissatisfied with the rest of her kitchen equipment that she doesn't stop until she's remade it with a range, a washer, and an ironer.

Norge's Old Crombie, sales trainer extraordinary, enters the picture in helping the woman's All-American halfback son to find his legs after he's made a rather discouraging start in the appliance selling business.

The son makes good, marries the girl of his dreams (whose father also is a Norge dealer), the mother rehabilitates her kitchen, and all ends well.

Two Other Films

Besides its feature, Norge has two two-reelers, one, "A Woman Started It," telling the refrigerator-range story, and the other, "The Driving Rein," the washer-ironer tale. A series of 52 one-minute movie trailers will also be available soon. Two samples were shown during the convention.

In addition, there will be a number of radio transcriptions available for dealers in the larger cities; and Norge's marionette show, "All in a Wifetime," will continue to make the rounds of department stores.

Magazine Advertising

The company's national advertising campaign will include three more publications than were used last year, *Collier's, Ladies' Home Journal,* and *Christian Science Monitor* being added to the 1935 duo, *Saturday Evening Post* and *Good Housekeeping.*

Most notable change from previous years' plans, however, is in the distributor and dealer cooperative advertising set-ups.

Instead of letting a distributor's advertising funds mount up, to be used in largely ineffective fall and winter campaigns, Norge will apportion its share of the funds on a month-to-month basis, without regard to the distributor's sales record. Allotments will be made solely upon the potential sales market in each distributor's territory, as estimated by Norge and its advertising agency.

The distributor will be sent, not later than the tenth of the preceding month, a statement of the amount the company will spend for advertising in his territory, together with names of media, dates, sizes, and copies of actual advertisements. This the distributor may accept wholly or in part. To the total accepted, he adds 50 per cent, making the cost one-third his, two-thirds Norge's.

The dealer cooperative will be operated in much the same manner, being independent of the dealer's purchases and depending only upon the advertising necessity in that particular territory, as worked out by Norge and its agency.

Campaign for Dealers

Not lineage alone, but sales impression, is the motive back of the dealer campaign. Month by month, the distributor will receive a schedule of the dealer advertisements Norge will run in the territory; this he accepts, in whole or part, naming the dealers he thinks should cooperate.

Either the distributor or Norge's agency will then contact the dealer, explaining the plan, and submitting the proposed ads for approval or rejection. The dealer's share in the campaign is 50 per cent of the ads he wishes to run. Payment is made, by the dealer, direct to the publisher of the paper in which the ads run. The dealer then bills Norge for half the amount.

Dealers can accept either all or part of the campaign for any month, but the media cannot be changed, and ads must be run within the time specified.

There will be no free sales promotion material this year; instead, Norge has a cost adjustment program, based on the amount of material which the distributor used in 1934 and 1935. Under this arrangement, the distributor will be given a quarterly promotional material contract, billing him for his 1934-35 average, at quantity prices. This he may accept wholly or in part.

The arrangement covers all 1936 promotion, with the exception of that planned for special occasions.

Theme of Norge's opening campaign, said A. W. Seiler, president of Cramer-Krasselt Co., will be "proved, approved, and improved. Proved by use, approved by housewives the country over, and improved this year more than ever before."

Early season advertising will feature a "microscopic buying theme," with all details and features of the 1936 lines covered in individual advertisements. An emotional theme will also be used, picturing the Norge as the protector against the "thief" of health, safety, and economy.

$4,375 Prizes Offered In Ga. Power Drive

ATLANTA—Cash prizes amounting to $4,375 are spurring salesmen and employees of Georgia Power Co. to turn Wendell L. Willkie Month, Nov. 24—Dec. 24, sponsored by Commonwealth & Southern Corp., into a quota-smashing appliance sales campaign.

Mr. Willkie, president of Commonwealth & Southern, has offered $1,000 in cash prizes for the best sales jobs down during this month in each of the C & S companies. To this, Georgia Power Co. has added $3,375 as sales prizes.

The company's quota for the contest is $242,925, based on the average sales per month for the first 10 months of the year.

Competing with Georgia Power Co. in this month's drive are Consumers Power Co., Central Illinois Light Co., Illinois Power Co., Southern Indiana Gas and Electric Co., Northern Ohio Power and Light Co., Tennessee Electric Power Co., Alabama Power Co., Mississippi Power Co., South Carolina Power Co., Gulf Power Co., Ohio Edison Co., and Pennsylvania Power Co.

What EXCLUSIVE Feature
marked the first genuine improvement in electric refrigeration for many years?

What EXCLUSIVE Feature
created a sensation in the refrigeration industry in 1935?

What EXCLUSIVE Feature
made a refrigerator carrying a well-known name EASIER TO SELL?

What EXCLUSIVE Feature
combined with all other worthwhile refrigeration features won amazing consumer acceptance in 1935?

What EXCLUSIVE Feature
was awarded 1st Prize as the most useful household invention by the National Inventors Congress?

What EXCLUSIVE Feature
will increase YOUR 1936 refrigerator sales?

. . . the Answer is

FAIRBANKS-MORSE *Conservador* REFRIGERATOR

● It will pay you to know ALL the details about the Fairbanks-Morse Conservador Refrigerator. Wait for the announcements before you commit yourself to conventional lines. For advance information, write Fairbanks-Morse Home Appliances, Inc., 430 S. Green St., Chicago, Ill.

PERSONALITIES

By George F. Taubeneck

The ERN Bureau Of Missing Men

Among the most persistently time-grabbing of all the duties which fall to the lot of the ELECTRIC REFRIGERATION NEWS editorial staff is that of answering inquiries. These come in by mail, by telephone, and with the person of the inquirer. They range from requests for the address of the manufacturer of an icebox nailed together during Garfield's last administration up to three-page questionnaires from advertising agencies which are trying to wrest a big account away from another agency.

After so many years of it, we thought we had these various types of inquiries pretty well catalogued. But a new one came in recently.

A Detroit woman called us up on the phone, and wanted us to help locate her husband. It seems that he had left his home, hearth, and hausfrau for parts unknown, and she was determined to catch up with him.

He never missed a copy of ELECTRIC REFRIGERATION NEWS, she remembered, and hence she guessed that he would probably send a change of address to our subscription department. If we would only be so kind as to give her that new address, she'd track him down pronto. Pretty clever of her, we thought.

Now here was a problem of ethics, with contenders in our department upholding each side of the debate. But luckily no decision was necessary, for the AWOL gentleman has not, as yet, sent us his new address.

* * *

Wan But Winning

Distributors of Norge products who were in Detroit last week for the annual convention were confronted with a rather startling sight—a pale and wan JOHN KNAPP.

The hard-driving Norge vice president in charge of sales had just been discharged from a hospital a few days previous to the convention, and although he is now well along the road to recovery, the ruddy glow, fire in the eye, springy step, booming cordiality, and vigorous gestures which have always characterized the Johnny these distributors knew, were missing.

Nevertheless and notwithstanding, Mr. Knapp delivered some ringing speeches, replete with the picturesque language for which he is so noted. Even in convalescence his way is winning.

* * *

Air-Conditioned Chickens

Probably the world's first air-conditioned chicken ranch is owned by President HOWARD BLOOD of Norge. Major Blood's hobby is raising chickens for profit—and fine eating. The convention banquet was built around generous entrees of chicken from the Blood farm.

Especially proud is Major Blood of the fact that when you cook one of his chickens, you find that the legs are as tender as the breast. There are lots of reasons for this phenomenon (see story on this page in Nov. 21, 1934, issue of ELECTRIC REFRIGERATION NEWS). One of them is air conditioning.

Norge engineers worked for some months on an installation of air-conditioning equipment in the big barn which houses the Norge president's chickens. Now that the installation has been in operation for some months, Mr. Blood is able to report definitely that it pays.

* * *

'AND Gentlemen'

Hit of the convention was Swedish Distributor K. J. LEVIN, who read a speech, in model English, to the assembled distributors. Mr. Levin has been learning English only recently, and his pronunciation and enunciation were delights to the listeners.

C. L. FOSSATTI of the Norge export department says he labored all one afternoon with Mr. Levin in preparing that speech. Our queer and highly illogical idioms and locutions were a never-ending source of puzzlement to the gentleman from Sweden.

As for instance: He wanted to begin his speech with the salutation, "Mr. Blood, and gentlemen." Mr. Fossatti had quite a time of it explaining that this salutation would indicate that Mr. Blood *wasn't* a gentleman, and hence would be sure to evoke a roar of laughter.

When we get to Sweden, Mr. Levin will probably have plenty of laughs at our expense, so he'll no doubt forgive our reference to his labors with the complicated English language. He was highly, and deservedly, popular with all the distributors, and factory officials are more than proud of the job he is doing in his native land.

B. MITTELL of Electric and Musical Industries, Ltd., London, England, was also present at the Norge convention. Mr. Mittell agrees with other gentlemen from abroad who have been quoted in this column to the effect that war in Europe next year is a most remote possibility.

* * *

Advance Foreign Reports

As most readers of this page know by this time, the writer is leaving early in January on an extended trip around the world, with the purpose of reporting present conditions in foreign markets for refrigeration and air-conditioning equipment.

Most of the world's most important commercial centers are included on the itinerary, although, of course, it won't be possible to visit *every* city of interest.

It so happens that China, the Philippine Islands, Greece, and Denmark are not on the schedule. From American consuls and trade representatives in those countries, however, we have obtained information on the present situation in those countries—information which we shall retail to you here.

* * *

China

Until the recent depression, Shanghai offered a very good market for refrigerators, reports Consul General Edwin S. Cunningham. Within the past few years, most of the apartment houses built in the city have been equipped with such units. Financial means permitting, many private homeowners have also been replacing wooden ice boxes with mechanical refrigerators.

Principal buyers, however, are nationals other than Chinese, since most Chinese foods and beverages are consumed hot. Also, most perishables are purchased on a small scale, usually on a day-to-day basis.

About a dozen makes of refrigerators are on the market at present, the trade being obtained, principally, by two or three internationally known models of American machines.

Only non-American refrigerators marketed in Shanghai at present, reports Mr. Cunningham, are the "A.E.," with a locally made cabinet manufactured by Asia Electric Co., Federal, Inc., U. S. A., and a German D.K.W. motor, and the British "Electrolux" machine, operated by gas, electricity, or kerosene.

The "A.E." machine is being offered in only one model, a 6½ cu. ft. unit, selling at retail for yuan $570, cash. However, 4½ and 5½ cu. ft. models will be made and offered to this market, at about yuan $400 and $475, within the next few months.

Imports of electric refrigerators into China, Hongkong, and the Kwantung Leased Territory, amounted to 1,236 units, valued at $145,400, in 1932, and 1,554 units, totaling $144,950, in 1933. Figures for 1934 are not available, but are thought to be considerably higher than in either of the two years mentioned.

Because of the many makes merchandised in the country, Mr. Cunningham says, competition is very keen, and newcomers in the field are having considerable difficulty in finding suitable representatives, since most companies hesitate to import in large enough quantities to carry stocks.

There are not many firms with adequate facilities to take on new lines, either because they already have agencies, or because a showroom and service department are necessary. General opinion seems to be that the money and effort involved in advertising and trying to introduce new products are not justified by potential returns.

* * *

Back Home

A. L. Scaife, advertising and sales promotion manager for General Electric, just back from a nine-week tour of G-E distributors from Cleveland to the coast.

Philippine Islands

There is a small market for air-conditioning equipment in Philippine Islands, reports Trade Commissioner J. Bartlett Richards, Manila.

So far only about a dozen installations have been made, most outstanding of which are in theaters, the operating rooms of two hospitals, and two railway passenger coaches operating between Manila and Baguio.

Most of the installations have been small self-contained units.

* * *

Denmark

Electric refrigeration is comparatively new in Denmark, reports Consul General Lestrade Maynard, the climate there being such that refrigeration in the home is not absolutely essential.

Installation of small units in apartments, however, has become a fad, and most of the buildings now being constructed are being supplied with this equipment.

Local manufacturers are partially meeting the demand for this equipment, says Mr. Maynard, but the majority of the units are being imported from England, Germany, and Sweden. Usual method is to import the parts, and assemble the units within the country.

Certain legal restrictions apply at present to all importation of foreign goods. All imports are under the control of an Import Control Board, a government body established to regulate the flow of trade to those countries with which Denmark has a favorable trade balance. United States is not one of those countries.

Refrigerators are on the restricted list, which means that before any can be brought into the country, the importer must obtain an import license from the Control Board. Licenses may not be issued to firms to import more than 45 per cent of the value of any given article imported by the firms during 1931.

* * *

Greece

Attention of the electrical appliance trade in Athens, Greece, has been focused on the sales possibilities of commercial refrigeration and air conditioning during the last few months, reports Commercial Attache Don C. Bliss.

While considerable progress has been made in recent years in the use of electric household appliances in the Athens-Piraeus area, the field for commercial refrigeration and air conditioning has been practically untouched, Mr. Bliss says.

Importation of a few unit air conditioners last summer, and the installation of several commercial machines in grocery stores, hotels, restaurants, and meat markets, has served to show the possibilities of these two lines in a country like Greece, where the summers are long, hot, and dry.

Improved electric current conditions in the area, a development of the past five years, is credited with the creation of the growing demand for appliances.

Most serious obstacle in the way of developing sales of refrigerating and air-conditioning equipment is the existing import quota system, which tends to restrict imports of all lines of manufactured products, as a means of preserving the country's foreign exchange resources. In spite of this, however, Mr. Bliss is of the opinion that there is plenty of room for air-conditioning and commercial machine sales in Greece during the next season.

At present, American air-conditioning machinery of the unit conditioner type can be cleared through customs under the regular quota allotment for electrical appliances in general. For larger plants, a special permit is required from the Minister of National Economy, since such equipment is considered as machinery, and is subject to approval of the Council of Industry.

So far, this ministry is inclined to discourage imports of machinery and mechanical equipment from the United States, while granting special facilities to shipments originating in Germany.

Explanation for this policy lies in the desire of the Greek government to reduce the heavy credit balances which are accumulating in favor of Greece under the Greco-German clearing arrangements, and which can only be utilized through Greek purchases of German products.

Gracious

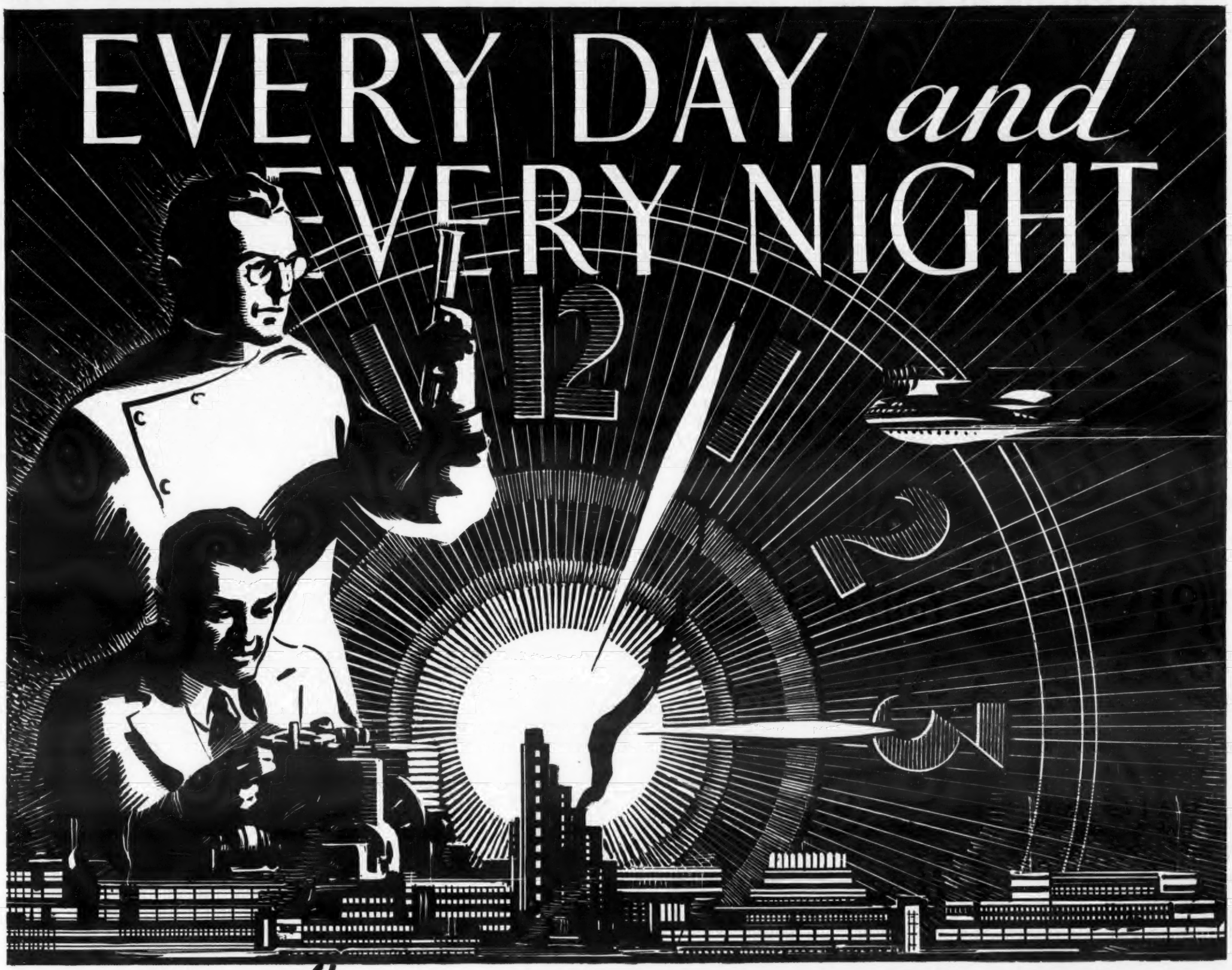
This is Ted Quinn's gracious Miss Smith — the low-voiced secretary who makes you glad you called when you phone the busy new president of Maxon, Inc.

Refrigeration Engineers Talk Shop at Banquet and between Business Sessions

(1) W. W. Rhodes, sales manager of Kinetic Chemicals, Inc., and E. W. Goodwin, senior mechanical engineer of the Procurement Division of U. S. Treasury Department, discuss the methods of getting contract business from the government. (2) A huddle at the A.S.R.E. banquet. (3) Fred Ophuls, George Horne of Merchants Refrigerator Co., New York City, and Harry Edwards, Union Carbide & Carbon Co., talk over the proposed air-conditioning standards. (4) Another interested listener was H. C. Guild of Vilter Mfg. Co.'s New York City branch.

(1) Jack Schaefer, former News engineering editor now with York Ice Machinery Co., checks the A.S.R.E. convention register to see how many friends are among the early arrivals. (2) One of these was K. M. Newcum, author of the soon-to-be-published Master Service Manual. (3) Jack and Mr. Newcum stand aside to let a couple of the other conventioneers check up on their acquaintances. (4) The close attention evident in this picture is typical of the interest engineers displayed at all sessions of the convention.

EVERY DAY *and* EVERY NIGHT



another INVENTION

During the past twelve months Electric Refrigeration News has reported 754 refrigeration patents granted by the United States Patent Office at Washington.

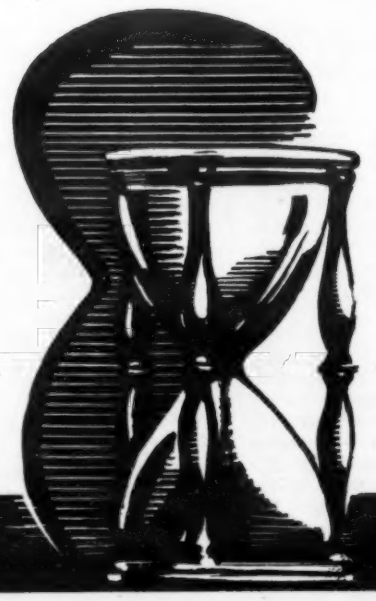
These 754 patents, one for every day and every night of the year, indicate the spirit of the industry. They tell of activity—development—progress—opportunity.

To such a progressive and growing industry, authentic news is a vital necessity. Electric Refrigeration News correlates this essential information and distributes it around the world.

Here is a receptive market—a major industry which has been built up in just one decade—a group of buyers who are alert to the comparative merits of new products and of new merchandising opportunities.

If you have a product designed and graded to fit this market, Electric Refrigeration News is available to carry your sales message promptly and frequently.

Tell about your product and your proposition in Electric Refrigeration News, and you are telling it to the men who count.



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No Let-up or Let-down

CHAMPIONS in any line are generally subjected to the howling of the wolves. No sooner does a man, a company, or an industry raise its head above the crowd, and begin to breathe the rare atmosphere of high success, until the rumors begin to go the rounds that he—or it—is on the road down, and soon will be hitting the chutes. Slurs from the less fortunate seem to be the penalty of leadership.

In many places today you will hear that the electric refrigeration industry has reached its peak, that this year's record sales figures will never again be reached. "They are saying" that the most productive strata of the market have all been worked, and most of the pay dirt extracted. "They say" that the income brackets left open for cultivation cannot be expected to return either high volume or profits. One hears that refrigeration has passed clear out of the specialty stage, and that household refrigerators have now become over-the-counter merchandise —with only a minor place left for the dealer in the scheme of things.

But such dolorous predictions have been made before. They were uttered, in mournful numbers, last year. For example, the editor of a weekly paper in the radio field last April editorialized as follows:

"About a year ago the prediction was made in this place that the refrigeration business would not score another gain in total units during 1935 over 1934. Optimistic statistical set-ups to the contrary notwithstanding, it now looks as if the projection set down many months back IS COMING TRUE. A bad break in the weather, and accumulated stocks in dealer hands, have brought the refrigeration industry face to face with intensive competition. The survival of the fittest is setting in, and scarcely six weeks remain in which to capture the cream of the year's market. Going back to the phrase of the early depression days, it 'isn't hard times coming, it's the soft times going' in the production and merchandising of electric refrigeration."

How far off from the truth this prediction was already is a matter of historical record. During all of 1934 the industry sold an estimated total of 1,400,000 units. In the first nine months of 1935, refrigeration sales had reached 1,529,552 —a gain of almost 130,000 over the previous year, *with three months yet to go.* In 10 months, the figure had been advanced to 1,586,242. Refuting the radio man's contention that "the cream of the year's market" would have to be "captured" by the first of June, the industry went out to do a real selling job during the summer months, with the result that in July and August new all-time records were established, and success in beating the bogey for the year was assured.

In answer to the rain-crows who are now croaking that the refrigeration industry is about to start on a downward trend, it can be pointed out, first of all, that practically all the manufacturers in the business are making preparations for a bigger year in 1936 than they had in 1935. Almost without exception their budgets for advertising and promotion are larger than they were this year—which is an unfailing sign that those who accept the responsibility for approving the budgets believe that more business can be had next year by those who go after it.

Another favorable factor is improved general business conditions, and vastly improved public sentiment. People who could have bought electric refrigerators in any of the last four or five years, but who refrained because of unsettled conditions and fears that they might lose their jobs, are now once again facing the future with confidence and chins up, and are ready to spend money for things they have been wanting. Already the automobile industry has learned that this condition obtains, for with models only slightly changed from those of 1935, and with the introductory shows staged almost three months in advance of the customary time, the automotive manufacturers are enjoying record advance orders.

It should be noted, too, that credit is now much easier than ever before in the history of the refrigeration industry. Through the older established financing corporations, and through offshoots of the Federal Housing Administration, dealers are able to handle non-recursive paper of families which formerly might have been considered questionable risks. Moreover, the lower terms for time payments now available are making the purchase of an electric refrigerator on the instalment plan much more attractive than it has been in previous years.

Obsolescence as a factor in the market will likely become important in 1936, many competent observers feel. For one thing, hundreds and even thousands of families have purchased refrigerators during the depression years (because they were trying to cut down first cost) which were far too small for their needs. These families are now ripe for demonstrations of the conveniences of the newest models, with emphasis on the economies and satisfaction made possible through ownership of larger-sized refrigerators. More than one manufacturer this year is planning to make the prices of these bigger boxes highly attractive.

Nor can one overlook the possibilities which lie in the flowering of the government-sponsored and industry-promoted home building and modernizations programs, fruition of which is expected for late 1936.

All in all, the electric refrigeration dealer has every reason to expect that the electric refrigeration business will be very good, not only in 1936, but for many years to come. Naturally, it will not fall into his lap. He will have to go out and get it, aggressively, as heretofore. But it does seem reasonable to presume that he should be justified in setting up a bigger promotional budget for 1936, and in preparing himself to do a real job on refrigeration throughout the year.

WHAT OTHERS SAY

The Best Customer of Them All

WHEN an industrial customer comes to town the power company steps right out. A salesman calls and offers advice and help. An engineer will check his plans and equipment for motors and control. Here is a worth-while piece of business—maybe 10,000 or 50,000 kwh. a year—though at the lowest rate. It is taken care of.

Down the street from the utility's office is an appliance dealer. He may sell 50 refrigerators in a year. That means 30,000 kwh. at a higher rate. He might sell 20 ranges—or 30,000 kwh. more. He might sell 25 ironers and hundreds of small appliances. He already produces more revenue for the power company than that new factory. But too frequently nobody ever goes near him.

In a recent example, a dealer who has sold 120 refrigerators so far this year admitted that he does not know the sales manager of the local utility. He knows the salesman who "covers" him, but the sales manager himself has never called. And this is by no means unbelievable. It is not general, for in most cities there is a friendly contact, but it occurs in enough places to be entirely credible. Yet such a dealer produces new revenue continuously and is worth developing.

Every power company has on its staff men trained in accounting, advertising, sales, and engineering who can help build better dealers. How to keep a set of books and know costs, how to buy and keep stock, how to dress windows, how to train salesmen, how to service customers —these are the problems that beset the dealers. It would pay the utility to have one of its men schooled in each specialty, to conduct each year a cooperative course of training for dealers, so that the net volume of appliances sold onto the lines may be steadily increased. For every good dealer is an asset as valuable as the good commercial or industrial customer to whom special service is gladly extended.—*Electrical World.*

LETTERS

Canadian Prices

Kelvinator of Canada, Ltd.
London, Canada

Editor:

On the first page of the Nov. 20 issue of ELECTRIC REFRIGERATION NEWS there is some very interesting information in regards to sales of refrigeration in the city of Philadelphia.

We, in Canada, are often taken to task severely due to the great differential on the price of refrigeration in Canada in comparison with the U. S. market. However, this particular article works out at a price of $180 per cabinet and as near as we can learn across Canada the average price is well under $200.

Would you have information available of a like nature applicable to other points where there has been a volume sale of this commodity in 1935? Information of this nature is very valuable to the Canadian industry and we would appreciate any information you may have along these lines.

W. G. BENDLE,
Domestic Sales Division.

Double Trouble

Zabel-Martin Co., Inc.
5805-09 Sixth Ave.
Kenosha, Wis.

Editor:

The writer was injured in an explosion of sulphur dioxide on July 6, of this year, confining me to the hospital for some time.

In returning to my office I find that, coincidentally, our subscription to REFRIGERATION NEWS stopped with the July 6 issue.

We have nothing in our records or files telling us just why this has happened. Can you enlighten us to why?

I would appreciate your resuming my subscription with the July 6 issue, as I can assure you I have plenty of reading to do to catch up.

R. C. MARTIN, Secretary.

Bound Volumes

Potter Refrigerator Corp.
220 Delaware Ave., Buffalo

Editor:

If you have available a bound copy of ELECTRIC REFRIGERATION NEWS, volume May to August, 1935, we would very much appreciate your letting us have it. We are also interested in receiving a copy of the September to December, 1935, issue as soon as it is published. It is our understanding that the price of these volumes is approximately $3.50 each. Please advise us on this and we shall be glad to send you our check.

If you will accept our order for a set of bound volumes of ELECTRIC REFRIGERATION NEWS for the coming year, we would like to place our order. Please let us know whether it is possible to do this or whether it will be necessary for us to order each volume about the time of publication.

M. E. AIKMAN,
Record Department.

Answer: Bound volume No. 15 containing the weekly issues of the NEWS from May 1 to Aug. 28 is now available, price $3.00 in stiff paper board backs, or $5.00 in cloth and leather, plus express charges. Standing orders for new bound volumes as issued every four months are acceptable.

"I have sent to you this morning, by postal order, the amount of $3.00 for renewal of my subscription to ELECTRIC REFRIGERATION NEWS. I read with pleasure your publication specially the technical articles and those written by Mr. K. M. Newcum."—Ll. Vanaclocha Cortes, Plaza Letamendi 25, Barcelona, Spain.

"Enclosed find my check for $5.00 to renew my subscription to REFRIGERATION NEWS for one year and for one copy of the MASTER SERVICE MANUAL when it is printed. I enjoy your paper very much and it certainly covers its field thoroughly. Compliments of the approaching season to you all."—John B. Brady, 832 Rankine Ave., Lawrence Park, Pa.

"We trust that by the time this communication reaches you, you will have received the remittance referred to, and that we shall continue to receive our copy of the NEWS, which we find very interesting."—Herbert Evans & Co., 88 Pritchard St., von Brandis Square, Johannesburg, South Africa.

"Enclosed you will find a money order for $3.00 for a year's subscription to ELECTRIC REFRIGERATION NEWS to start Aug. 28, 1935, and you will send me reprints of Mr. Newcum's articles (the first six chapters of the book), in a 112-page pamphlet form. Please keep on printing matter for the service man. We sure can use it."—Frank Giononatti, Park Ridge, N. J.

Welcoming Hand Extended

Marco Refrigerators, Ltd.
Manor Works, Rowan Rd.,
Streatham Vale, London, S.W.16

Editor:

We were very interested to learn of your proposed world tour. It will give us the greatest pleasure to have the opportunity of meeting you in person and also if your arrangements permit, to show you around our little plant.

We suggest that the individual best able to assist you would be Mr. J. Raymond, of Empire House, St. Martin's-le-Grand, London, E.C. Mr. Raymond, as you may be aware, is the Editor-Proprietor of the *Cold Storage and Produce Review*, and is also Secretary to the British Association of Refrigerator, and a Director of the Refrigerator Manufacturers' Society.

A. E. LEACH,
Joint Managing Director.

Frigidaire
Refrigeration Perfectionnee
46 Rue La Boetie, Paris 8e

Editor:

Your announcement of your trip to Europe has been received and I am pleased to extend to you a sincere welcome to France.

I am specially pleased that you are taking this trip, and as far as we are concerned, you can rely on our willingness to give you all the information you may require, and if it is our possibility, to give you a real picture of conditions in this country. You are not an unknown amongst our organization and we will be very pleased to have this opportunity to tell you about our experience and give you our news.

I trust I will have the privilege, personally, to spend some time with you, and request that you do not hesitate to let me know if I can prepare any data for you before your arrival.

E. CARMEL,
General Manager.

Kelvinator, Ltd.
258 Gray's Inn Rd., London, W.C.1

Editor:

I am pleased to note that you are planning a six-months world tour—incorporating of course a visit to England in the New Year.

You may rest assured that we shall be very happy to be of any possible assistance to you. At the moment I can suggest no better plan than what you propose, i.e. endeavoring to get into touch with your different subscribers who are undoubtedly the principal representatives of the Manufacturers of Refrigeration, and certainly when you have gathered all their experiences and varying points of view on refrigeration problems and possibilities in this market, you will have a very clear picture.

I would suggest that you make a point of consulting with Mr. J. Raymond, Editor-Proprietor of *Cold Storage & Produce Review, Modern Meat Marketing,* etc. and Director of the Refrigerator Manufacturers Society. Mr. Raymond's address is Empire House, St. Martin's le Grand, London, E.C.

When you arrive in London please get into touch with me and I shall be very happy to give you some time and present to you a picture of the Kelvinator organization and development.

I am sure that after you have duplicated this with other organizations you will have food for thought.

RALPH SEARLE, Managing Director.

International Refrigerator Co., Ltd.
169 Regent St., London, W. I.

Editor:

It was with genuine pleasure that I read in ELECTRIC REFRIGERATION NEWS that you were contemplating a trip abroad.

We most cordially invite you to visit us, and every member of this organization will be glad to place at your disposal all available data and statistics pertaining to the refrigeration industry in this Country. We do not go in for Air Conditioning, so shall not be able to tell you anything about that.

I should like for you also to visit the factory of the British Thomson-Houston Co., Ltd., at Rugby (it is only 1½ hours from London) where our domestic refrigerators are made.

I hope you will let me know a few days in advance of your visit as I should like to make sure of being here.

JOHN J. WEST,
Managing Director.

A. J. Balcombe, Ltd.
52-58 Tabernacle St., London, E.C.2

Editor:

We should be very pleased to see you on your trip around the world and to put you in touch with any firms you might care to visit.

The writer intends to leave on Jan. 1 for a quick visit to the Crosley plant at Cincinnati, but hopes to be back by the end of January and shall be pleased to see you after that date.

E. K. BALCOMBE, Director.

W. A. Ramsay, Ltd.
Mechanical & Electrical Engineers
Fort and Queen Sts., Honolulu, Hawaii

Editor:

In regard to your proposed trip around the world during the first six months of 1936, we should be glad to assist you in any way possible during your stay in Honolulu.

W. A. RAMSAY.

Management Must Give Information on Economic and Social Problems to Employees, Utley Tells Publishers

NEW YORK CITY—It is the responsibility of management to make available to employees information on economic and social problems which will encourage the employee to fight for the retention of those American principles which enable him to enjoy all his present opportunities and advantages, S. Wells Utley, president, Detroit Steel Casting Co., declared in addressing the recent convention of the Associated Business Papers, Inc., here.

Mr. Utley urged "management" to rid itself of the feeling that it cannot talk to those employees who work in the shop, and to bring the problems facing the country to their attention.

Columbus First New Dealer

The speaker, in tracing the development of the "American" system, declared that Christopher Columbus was the first "New Dealer" (1) because when he set out he didn't know where he was going; (2) when he got there, he didn't know where he was; (3) when he got back, he didn't know where he had been; (4) while he pretended to be working only in the interests of humanity, he was actually seeking great power and tremendous wealth for himself; (5) he made the voyage both ways on borrowed money.

"When the first 'New Dealer' reached its shores, the population of Continental United States is estimated to have been in the neighborhood of 200,000 Indians," said Mr. Utley. "Certainly there is no biological reason why the race of the Red Man shouldn't have multiplied far beyond this figure; the fact that it stayed thus restricted must indicate that this number represented the maximum number of people whose life could be maintained by the country in its raw, uncultivated state.

Productivity Increased

"It represents the annual income of the natural, God-given wealth of the country, uninfluenced by human brains and human hands.

"In the next three centuries, the period between that time and the formation of our Government, the hand of man increased the productivity of the country until, in addition to the Indians, it supported three and one-half million white men in the English Colonies, plus an unknown but relatively small number of Frenchmen in the Mississippi Valley, and a few Spaniards on the Western Coast; in the century and a half since the adoption of the Constitution the ingenuity of man and the productive power of his labor have so increased its resources that the country now supports 630 times its original population, in accordance with a standard of living luxurious beyond the wildest dreams of any man living when my own father passed away.

1/3 of World's Total Wealth

"Although possessed of but 6 per cent of the land area, and 6 per cent of the population of the world, our people enjoy more than one-third of its total wealth, and our total national income for the three worst years of the depression was greater than the capital saved by the entire human race from the beginning of time up to the date of the American Revolution."

All this hasn't come to us because our country is richer than any other, because our people are more intelligent than those of centuries ago, because they are more industrious or more skillful, the speaker declared.

It isn't a gift of God bestowed on a favored land. Such amazing changes don't just happen; they come only because of positive, definite forces as eternal in their action as the laws of physics or of gravitation.

Work of Watt, Smith, Jefferson

"The twelve years succeeding 1764," said Mr. Utley, "marked the birth of a change in human relations, more important than the happenings of all previous time combined. During that period three human beings each made a contribution to human thought, whose combined effect separated the former world from the world to come as completely as though a curtain had been rung down blotting it out forever.

"In 1764 James Watt, a Scotch mechanic, to whom the Labor Board of his Code Authority (then known as a Craft Guild) had refused a license to open his own shop as an instrument maker on the ground that he hadn't served his full time as an apprentice, recognized the expansive power of steam and invented an engine to harness that power.

"In 1776 Adam Smith, a Scottish professor of moral philosophy, plumbing the pages of history, and scanning the thoughts of those who had gone before him, outlined the principles which motivate the actions of free men in economic society, and in his 'Wealth of Nations' described the truths underlying the system of Economic Voluntarism, or the Enterprise System, the system miscalled by Karl Marx the 'Capitalistic System.'

"In the same year, Thomas Jefferson, a philosopher, steeped in the teachings of the great minds of the past from the time of Socrates and Plato down through the more recent days of the French political philosophers, outlined in the Declaration of Independence the principles of government and politics which should govern man in his political life if he was in truth to be a creature made in the image of his Maker.

"Watt increased the strength of man's arm and freed him from human slavery, for with the constant cheapening of mechanical energy slavery became an uneconomic institution.

"Two and one-half centuries before, Luther had proclaimed the freedom of the human soul from the authority of Church and State. Following his lead and applying the same principles to the Economic field, Smith pointed out that by removing the fear of force, oppression, regimentation, and restriction from the human mind you released in enormous quantities the mental energy, the Spiritual force which is the driving power of all human actions.

"Jefferson pointed out that in the State, the divine, God-given, inalienable rights belonged not to kings, dictators, or governments, but to ordinary human beings such as you and me.

Constitutional Convention

"It was 11 years later that the Constitutional Convention built the structure, the engine if you please, which should make the principles enunciated in the Declaration a living, stimulating force in the life of a people; for the Constitution expounds no principles not already a part of the Declaration of Independence, it simply sets up a machinery of government under which those principles can operate."

In this it is akin to a building housing a great industrial plant, Mr. Utley explained. Superficially that building has no relation to the product, but, basically, the satisfactory operation of the machines, the turning out of a high-grade product, is possible only because the building keeps out the wind, the rain, and the snow, and provides warmth, light, and satisfactory working conditions for both men and equipment.

Motivating Principles Attacked

"In all countries today the principles which have been the motivating force of the tremendous progress of the civilized world are being challenged and attacked: first, by those who, having failed to achieve results, feel that inasmuch as they are now on the bottom, if society can be turned upside down, they will then be on the top; and by those who, having spent much time in reading and consorting with immature minds, feel that they have become masters of all things of which they have had no experience," said the speaker.

"Strangely enough, these people make no attack on the material side of our civilization. So far as I know, no one has advocated breaking up all the power plants; but they do attack the spiritual side, and advocate tearing out, disrupting, and casting aside those principles which have motivated man's spirit, and which alone have made his material accomplishments possible."

The supreme question confronting the American people, transcending in importance all other questions combined, is whether they will continue to cherish and defend the principles which have been the mainspring of our progress, or whether they will abandon them for those under which man stood still for thousands of years, Mr. Utley declared.

Responsibility to Employee

"If we honestly believe that American principles as exemplified in the American system have given to the employee a greater opportunity for advancement, a greater opportunity for happiness, a larger share in the wealth produced by his hands, than the principles which have operated in any other social system, then most assuredly we have a responsibility to help him to protect those principles for himself and his children," the speaker stated.

"We as management have advantages which he cannot enjoy; we possess sources of information which he cannot have. We meet in great assemblages of this kind, where we bring together the best of our economic minds, the best of our monetary minds, the best of our legal minds, together with men skilled in all lines of business. It is our responsibility to make available to him, in language which he can understand, the lessons and the information we are privileged to gather."

Dallas Dealer Offers 300 Units for Rental

DALLAS—A. Harris & Co., recently named exclusive Westinghouse dealer in Dallas county, opened its new sales campaign by offering 300 refrigerators on a six-month rental plan.

Terms of the plan permit the purchaser to pay $3 per month until June; if he decides to keep the box then, the amount paid in is deducted from the purchase price. If the refrigerator is returned, the rental payments are kept by the company.

Connally Will Direct Hermetex Production

DETROIT—James E. Connally, associated with Kelvinator Corp. for 11 years, first as chief chemist and later as cabinet engineer, is now in charge of production in the process division of Detroit Paper Products Co.

The company manufactures Hermetex insulation, and a new plastic material suitable for breaker strips, crisper tops, ice cube compartments, and other shallow-draw products.

Deferred Payments Used To Increase Xmas Sales

BIRMINGHAM, Ala.—To stimulate holiday sales of electric refrigerators, ranges, water heaters, and other appliances, Alabama Power Co. has devised a "$5 down" payment plan, with further payments deferred until April 1.

January, February, and March payments are omitted, to give customers a chance to pay other Christmas bills. Appliances sold under the plan will be delivered for Christmas.

You make more than one profit

The plan is simple and it works time after time. You start by selling a Temprite Beer Cooler which is the only device yet developed to serve beer exactly as the consumer wants it.

Almost immediately the dispenser's business picks up. Then he needs more equipment that you can sell him—keg storage refrigeration, back bar refrigeration, water cooling, food display, chef's box, etc.

The original Temprite is the starter every time. You know how it controls temperatures accurately and keeps the beer natural in flavor—not too much or too little foam. And it costs the dispenser less to operate a Temprite.

Start your 1936 business snowball by selling a few Temprites right now. You'll get orders for the other equipment next year.

TEMPRITE PRODUCTS CORPORATION
1349 EAST MILWAUKEE AVE. - DETROIT, MICHIGAN
ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

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JANUARY 5th
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CHICAGO

A NEW REFRIGERATOR

STYLED FOR THE FUTURE ... PROVED BY THE PAST
SOLD DIRECT · FACTORY TO YOUR STORE

Refrigeration by Wire

Wire or Write

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN — BRANTFORD, ONTARIO
MANUFACTURERS SINCE 1921 OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

AIR CONDITIONING

Machine Plant Executive Foresees Widened Use of Air-Conditioning in Industry

NEW YORK CITY—"Not long ago I completed a business trip which lasted six weeks and took me more than 11,000 miles into the principal cities of the states west of the Mississippi. During that time a wide variety of weather conditions were met with, including heat, dust, rain, and snow. At no time, while traveling by train, did I suffer any physical discomfort." Thus did Ralph Flanders, president, Jones & Lamson Machine Co., give testimony to the efficacy of air conditioning in addressing the recent convention of the Associated Business Papers on "New Prosperity from New Products."

"The cars were neither draughty nor over-heated; neither so dry as to parch the mucuous membranes nor so damp as to be chilly; and the air in them was so free from dust and soot that one's collars and cuffs remained clean for hours after they would have become smudged and wilted in the ordinary city office or home," Mr. Flanders declared.

"Particularly notable was the passage of the Bad Lands in North Dakota. I have a vivid recollection of previous trips in which a choice had to be made between suffocation in the berth with windows closed and dust seeping into every nook and corner, or opening the window ever so slightly for air, and finding clothes, blankets, and hair packed with desert soil in the morning.

"Instead, on this occasion, the night was spent in comfortable sleep, in a berth supplied with fresh, cool air from which every trace of dust had been removed.

"It is, of course, 'air conditioning' which has made this change; and air conditioning is the typical present-day example of those new inventions and developments which expand industry, increase employment, and raise the general standard of living," said Mr. Flanders.

Mr. Flanders pointed out that air conditioning is typical in that, once perfected, it takes its place as one of those improvements whose universal appeal assures it a rapidly growing and, eventually, an enormous extent of application.

"Two or three years ago it was a curiosity," the speaker declared. "It found its first application in dining cars on our more progressive railroads. Moving picture theaters and then department stores followed suit. Meanwhile it was applied not only to the dining cars, but as well to the Pullmans and the day coaches of all important trains.

"Now office buildings and private homes demand its provision of comfort and health. Soon, as a matter of working efficiency, we will be applying it to our industrial plants. Air-conditioned motor busses and automobiles are already on the way. There is no stopping this thing once it is started!"

Air conditioning is typical in another respect in that it is one of those developments which expand without detracting from other businesses or the manufacture of other products, Mr. Flanders expanded. Like the automobile and the radio, it represents a net addition to human enjoyment. The coming into general use of these universally desired improvements does mean more satisfaction, more employment, more wealth—in short, a higher standard of living for everyone.

"Indeed, in the long run, the expansion of such a new product generates the new purchasing power required to make it available to the people of the country," he said. "Only to a limited degree does it demand that less expenditures be made for other desirable goods and services."

Mr. Flanders believes that we are on the right road to recovery and to new and greater social advance when we take our courage in our hand, carry through the expensive months and years of development, and finally put the new idea on sale.

At the same time, Mr. Flanders emphasized that the neglected and misunderstood element is the new machine or processes which reduces the cost of production of all products and services whether new or old. These labor-saving improvements *by themselves*, without new products for the consumer, can bring about recovery, increase employment, and raise the standard of living, he claimed.

How can business which, as a whole, operates on a very narrow profit margin, lower prices without lowering wages, and thus really make progress toward a higher standard of living for all classes of society?

"The real answer to the problem of a simultaneous increased business output, increased profit, increased employment, and a generally raised standard of living is the answer that shallow theorists deride, shortsighted labor leaders combat, and timid industrialists avoid," said Mr. Flanders.

"The real answer lies in a renewed and continued application of more efficient labor saving machinery. Properly applied, this remedy makes possible the seemingly impossible. It lowers prices and raises profits without lowering wages and in lowering prices it expands employment instead of producing that dreaded 'technological unemployment.'

"Better machinery and methods have been the answer of the past. This alone has raised the mass of the population above the level of primitive agricultural subsistence. This alone has given millions of workers the bath tub, the radio, and the automobile. This alone will continue to provide these and newer comforts, and to extend them to millions of families now deprived of them.

"An immediate return to our former enterprise in the application of improved machinery will make possible that necessary decrease in prices without decrease in wages, will raise the standard of living, will raise the volume of business production, and will raise profits to the level required to support the industries producing these capital goods, whose workers are still largely unemployed."

THE
MOST HIGHLY DEVELOPED
SEAMLESS METAL BELLOWS
IN THE WORLD

Made from carefully drawn thin wall tubing specially heat-treated in electric furnaces. Formed by either rolling or hydraulic process. Cold worked for long life under repeated stress. *Tested* at every stage of manufacture for accuracy, durability, freedom from porosity and defects, resilience, sensitivity and expansion.

The product of 35 years of research and experience, its satisfactory use is insured by a knowledge of bellows properties and experience in bellows application which are unexcelled.

Yet it costs you no more to purchase Sylphon Bellows and thermostat assemblies.

FULTON SYLPHON CO., KNOXVILLE, TENN.

Office Building Split Up into 38 Zones for Conditioning Control

TOPEKA, Kan.—A year-around air-conditioning system has been installed this year in the 10-story office building owned by National Reserve Life Insurance Co. here.

Last spring, after it had been decided to install a conditioning system, President George G. Moore and Vice President Earle M. Moore of the insurance company made a tour of major installations between Chicago and Texas, to help them select the type of system most suitable to their needs.

Contract for the National Reserve building job was awarded to Capital Iron Works Co. of Topeka, a firm which has done considerable conditioning work in this area.

The installation has several unusual features. Direct-expansion Freon refrigeration is used throughout, the condenser and receiver being located on the roof, 130 feet above the compressors, which are in the basement. The building is divided into 38 zones, and separate controls are used for regulating the conditions in each zone, to suit both the number of persons inside and the temperature, sunlight, and humidity conditions outside.

A total of 131 tons of refrigeration is installed, supplied by three Frick enclosed-type Freon compressors. Two of these have cylinders of 8¾ inches bore by 6 inches stroke, while the third unit is 7¾ inches by 5 inches. Each of the larger machines is driven by a General Electric motor of 50 hp., the smaller compressor being operated at either of two speeds by a 40-20 hp. motor of the same make.

A Minneapolis-Honeywell multiple-step controller selects the combination of machine capacities to match the load on the cooling system. This grouping of the horsepowers available offers the equivalent of eight machines, ranging from 20 to 140 hp.

The compressors are mounted on heavy foundations isolated with cork and sand. Suction lines of the three machines are interconnected, as are also the discharge lines, and pipes run to each of the crankcases, to distribute the oil returning with the suction gas.

Gas equalizing lines, connected above the oil level in the crankcase, prevent any one machine which might be operating from sucking out the oil in the others. At the bottom of the main discharge risers is an extension pipe in which any oil in the line is allowed to collect. As the oil builds up, it trips a float switch, opening an electric shut-off valve, permitting oil to drain into crankcase connections.

Compressors are equipped with force-feed oil pumps driven by a chain inside the crankcase, and fitted with Flexo-seal packing at the shaft. This seal allows for the minute movements in the shaft as it turns, at the same time resisting the chemical action of the Freon. The two larger machines have automatic starting by-passes.

The main discharge line is a 6-inch copper pipe, with soldered connections, running vertically through a 3x4 foot shaft to the roof, where it enters the horizontal shell-and-tube condenser. Total run of this line is 160 feet. Main riser is secured by hangers and is supported at the top by a cable which passes over a wheel to a counterweight of 350 lb.

Condenser is of the multipass type, measuring 30 inches in diameter and 15 feet long, and is so placed under the cooling tower that the water runs over the outer surface of the shell, adding more than 11 per cent to the effective surface. Welded underneath the condenser is the receiver.

Level of the liquid in the receiver is so nearly constant, while the plant is running, that any material lowering of the level will indicate a Freon leak. A float switch, opposite the receiver, is connected to a light and alarm bell, in the machine room, which warns the engineer.

Individual blower units on the upper floors are located in the janitor's closet, adjacent to the pipe well. The liquid feed to each unit passes first through a Frick electric control valve, which provides positive opening or closing of the line, and then through a thermostatic expansion valve.

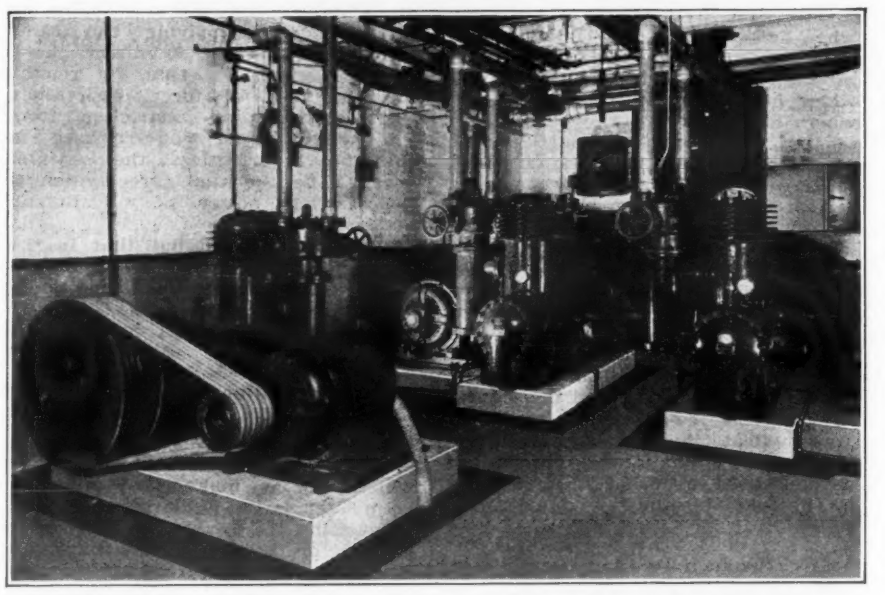
Basic principle on which the plant is laid out consists in regulating the volume of the conditioned air supplied to each zone, depending upon changing temperatures and humidity conditions inside; these inside conditions are also varied in relation to those outside. To accomplish this, Minneapolis-Honeywell compensated effective temperature control is installed.

Features of this control include electrical operation on low voltage throughout, with proportioning type, gradual action thermostats and humidistats, operating Modutrol motors.

Regulation of temperature and humidity is obtained by dividing each floor into zones. There are four zones on the second floor. All other floors up to and including the ninth have three zones; the tenth floor has five. Zoning takes care of moving sun and wind effects, as well as changing inside occupancy loads.

Office System Provides for Changes

This view of one of the offices in the National Reserve building illustrates the typical arrangement of ducts and air outlets in the structure. Plan of the system assures an air outlet into each room when a large office is partitioned into several smaller ones.



Refrigerating machine room in the basement of the National Reserve Life Insurance Co. building. At the left is a Frick 7¾ by 5 in. compressor; at right are two 8¾ by 6 in. machines. This equipment furnishes 131 tons of refrigeration.

Control units for each zone comprise a thermostat, humidistat, and a small motor to operate a volume damper in the duct which delivers conditioned air to that zone.

An outside thermostat reacts to outdoor temperature and determines the control point of the inside thermostat and humidity controller, relating inside conditions to those outdoors.

On the conditioning unit itself is an economizer control for the fresh air supply, which opens the fresh air dampers when the outside temperature is such that the air is suitable for cooling purposes. A humidity controller is also used to prevent the opening of the fresh air damper, or to close it so that only 1000 cu. ft. of fresh air is admitted at times of excessively high humidity outside, such as during a rain.

Blower units, as used on most of the floors, include eight Trane coils, each of six rows, with a face area of 18 inches by 48 inches, and a Buffalo Forge blower driven by a 2-hp. G-E motor. Each unit provides 17 tons of cooling capacity.

The blowers operate continuously whether the refrigerant is turned off or on. The air leaving each of the rooms (on the floors above the first) returns to the hallway through a grille in the bottom of the door, and from the hallway is recirculated through the ducts. No special fresh air inlets had to be provided on the first floor, this being taken care of by the opening of doors and windows.

The compressors come into action one after another as the suction pressure rises. An increase in pressure of 1½ pounds causes the control system to start another machine.

An extra panel in the machine room provides remote control of the central conditioning unit on each floor, and of the control system for each zone, so that the zones can be operated independently of each other.

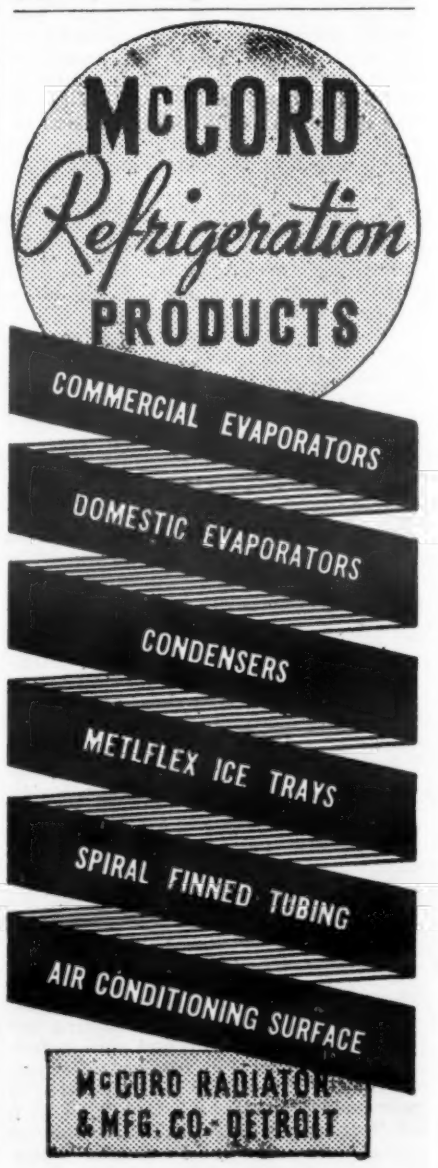
The heating system already in the building takes care of the winter load, but the blowers in the conditioning units are sufficiently powerful to overcome the resistance of preheating coils which later may be installed for tempering the fresh air taken in through the ducts for ventilation purposes. At present, each blower handles 5500 c.f.m. of air, of which between 1000 and 2000 cu. ft. are fresh air. Both fresh and return air is filtered.

The duct system used is unusual in an office building. Three trunk lines come off the unit—one doubling back to supply the rooms in that direction, the other going straight ahead, catching the rooms in the front of the unit on the same side of the hall, and the third crossing the hall and spreading both ways to supply that side of the building.

Plan of the duct system is such that the life insurance company can follow its standard line of changes when erecting new partitions for special offices, while always having an air outlet into each room.

The system is guaranteed to maintain inside conditions of 85° F. dry bulb and 71° F. wet bulb, when the outside conditions are 100° F. dry bulb and 77° F. wet bulb. The relative humidity inside the building is maintained at about 50 per cent and the temperature is from 10° to 15° F. below that on the street. Population load is based on 100 persons for the first floor and 40 persons for each of the other floors.

The system has operated satisfactorily through the past season, and proved to have ample cooling capacity. During the hottest days the head pressure never went above 130 lb. gauge, in spite of 108° to 110° F. weather, with high relative humidity.



COMMERCIAL REFRIGERATION

Counter Freezer Manufacturers Adopt 23-Point Code of Ethics

(*Concluded from Page 1, Column 2*)

visions of said sections. Members shall advise the secretary when the provisions of this paragraph shall have been complied with.

No interpretation of this code of ethics shall be construed to fix or control selling prices of the products of the members, or otherwise violate any city, state or federal law.

When the word "member" is used it shall be understood to include all executives, sales and service representatives of the members. Representatives shall include not only salaried or commission employees, but independent jobbers, dealers or contractors who sell and service the counter freezer products of the members.

(1) Each member subscribes to "Truth in Advertising." No statement concerning its product that is misleading or untruthful shall be published, nor shall the name of any member or the trade name of its product be specifically referred to in another member's advertising or literature.

(2) No member shall refer to the financial condition of another member in a derogatory way in presenting his product to a buyer.

(3) Every member has the right to make technical comparisons of his freezer with those of other members, but no member shall "knock" the products of other members.

(4) No member shall "steal" another's employees. To guard against treachery within the industry, members receiving applications for employment shall communicate with applicant's references within the industry before hiring such applicant.

Definition of Cash Sale

(5) A cash sale shall be understood to mean a transaction where an order (not a conditional contract) signed by the buyer shall be accepted by member, the price and terms of sale being plainly shown on the face of the order before buyer's signature is affixed.

Terms on cash sales shall not be longer than 30 days after date of invoice.

(6) A "time sale" shall be understood to mean a transaction where a conditional contract of sale signed by buyer and witnessed, shall be accepted by member. Description of goods, total selling price, down payment and balance due shall be plainly shown, and in addition the total number of months over which the balance is to be paid.

(7) Contract may contain the provision that payments, during the months of May to October, shall be one-third more than the average. The minimum monthly payment shall be not less than $25.

Judgment Form of Note

(8) Attached to contract shall be a judgment form of note whenever legal, showing each and every monthly payment to be made and when due. Said note shall be signed by buyer at time of signing contract. Note shall bear interest on matured payments at the rate of 6 per cent per annum.

(9) A finance charge of not less than ½ per cent per month shall be added to the member's published cash price for the total number of months over which payments are to be made, to arrive at the total conditional sales contract price.

(10) Total time over which the balance of purchase price can be paid shall not be longer than 24 months.

(11) Should buyer elect to make cash settlement before expiration of contract, no more than ½ per cent per month on unpaid balance to expiration date of contract shall be allowed. No cash discount shall be allowed for cash in making such balance settlements.

(12) No member shall knowingly accept any order or contract involving rebates, allowances or split commissions by salesman or distributor with customer, other than those provided for herein.

(13) All contracts for time sales shall be accompanied by a property statement.

Sales Terms of Non-Members

(14) All members shall report to the secretary as promptly as possible, any information covering terms of sale in force by counter freezer manufacturers, not members of the Association. The secretary shall, in turn, distribute this information to members with the least possible delay.

(15) All information obtained by members covering legislation affecting the sale or use of counter freezers, shall be promptly reported to the secretary for appropriate action.

(16) No sales shall be made on a trial basis, either verbally or in writing.

(17) Standard form of guaranty used by members shall be as follows:

This counter freezer or appurtenance thereto is guaranteed by the maker to be free from defects in workmanship or material. Should any defects in same develop within 90 days from date of sale, the manufacturer will replace said defective part or parts without charge. After 90 days and including 12 months from date of sale, manufacturer will furnish new parts f.o.b. his factory, for any parts that may prove to be a defect in manufacturing.

Advertising Allowances

(18) No advertising allowances shall be made any customer prior or subsequent to sale. All cooperative advertising shall be in the form of printed matter for store display which may be supplied free by a member in such quantities as he may elect.

(19) No freezers shall be "loaned" except for display purposes at food, hotel, restaurant, and similar shows where member exhibits.

(20) No member shall solicit cancellation of contract secured by another member, if one-half the down payment has been paid with contract and received by said member.

(21) No member shall do any plumbing or electrical work in connection with the sale or installation of a freezer, and shall not pay for same directly or indirectly.

(22) Members shall list their regular cash prices with the secretary of the association. These prices shall be open for inspection by other members.

(23) Members shall file with the secretary of the Association any change in cash prices, not less than 15 days prior to the date on which they become effective.

Curtis at the Dairy Show

A 5-ton Curtis condensing unit was featured in its display at the National Dairy Show in St. Louis

Curtis Machines Used in Dairy Show Exhibits

ST. LOUIS—Curtis Refrigerating Machine Co., besides having its own booth at the National Dairy Show here last month, also furnished the refrigeration equipment for two other displays which attracted much attention during the exposition.

The Curtis display booth featured the company's standard 5-ton condensing unit, in operation, along with several other Curtis units and coolers. Attendants were present at all times to explain functions and features of the equipment to visitors.

The "Pioneer Farmer" exhibit of the Sugar Creek Creamery Co., showing a farmer guiding a plow drawn by two oxen, was sculptured from one ton of butter. It was kept in its modeled form eight days, at a temperature of 42-48° F., by a Curtis ¾-hp. air-cooled unit.

The State of Wisconsin's display, showing the "world's largest cheese," weighing 4,800 lbs., and thousands of pounds of other cheeses, was cooled by two 1½-hp. Curtis condensing units, supplying four UC-6 unit coolers. A temperature of 44-48° F. was maintained throughout the week of the show.

Unit Coolers, Cube Maker Sold to White House

WASHINGTON, D. C.—Five Fedders Forcedraft unit coolers and a model FC-16-TRF ice cube maker refrigerator are included in the equipment now being installed in the White House kitchen by Edgar Morris Sales Co., Westinghouse distributor here.

The unit coolers are installed in food storage rooms and a 130-cu. ft. storage cabinet in the kitchen. The ice cube maker has a capacity of 576 cubes per freezing. Westinghouse and Fedders equipment will cover every refrigeration need, from chilled bouillon for 100 dinner guests to ice cubes for a garden party of 500.

One of the interesting units is a special refrigerated fish box for the President's "catch," when he returns from his memorable trips.

Kelvinator Unit Used In Truck Trailer

KANSAS CITY, Mo.—A Kelvinator truck refrigeration system using a gasoline-motor driven condensing unit, has been installed in a trailer of Riss & Co., Inc., transportation company, by Richard & Conover Hardware Co., local Kelvinator distributor.

The equipment, consisting of a gasoline-driven condensing unit and a forced convection coil, occupies the round nose of the 22-foot trailer and provides a temperature of 38° F. for the cheese, mayonnaise, and other dairy products which are hauled on runs of from five to 20 hours.

Refrigeration system is complete and entirely independent, and can be operated whether the trailer is moving or standing still. A small 110-volt d.c. generator, belted to the gasoline engine and condensing unit, runs the 110-volt d.c. fan motor used in the forced convection unit. The trailer has a larger gasoline tank than comes with the standard installation to provide longer independent operating time.

Insulation consists of a layer of Celotex and a 2-inch blanket of Dry Zero in top, sides, doors, and front. On the floor is a 2-inch layer of wood.

Hollywood Cafe Installs Fedders Unit Cooler

HOLLYWOOD, Calif.—"The Berries," popular and picturesque Hollywood cafe, where "pictures" players gather for a snack and a cool drink, has installed a Fedders unit cooler and a non-frost coil to insure the freshness of the food it serves to the great and near-great of movieland.

The model 214 unit cooler is located in the walk-in storage room. The Non-Frost coil, controlled by a model 33 thermostatic expansion valve, is in the showcase. Both are connected to a William 1-hp. model DA high side, to maintain ideal temperature and humidity conditions.

Installation was made under the direction of Frank Norton of Norton & Norton Electric Co., Williams Ice-O-Matic distributor in Hollywood.

Double-Duty Case Is Added to Fogel Line

PHILADELPHIA—Fogel Refrigerator Co., manufacturer of refrigerators and display cases, has added to its line of products a three-shelf double-duty case, designed with an extra large showcase compartment to permit the display of bulkier foodstuffs to greater advantage.

Better vision of meats and perishables is made possible by a longer sloping front display compartment, with the shelves elevated so that products on the bottom of the compartment are easily seen by the customer, and more easily removed from the case by the merchant.

Front glass of the compartment consists of three heavy plates, hermetically sealed in a leak-proof rubber frame. The glass frame is removable, in case of breakage or other damage.

Service doors in the display compartment are of hard rubber composition, and are built especially wide to permit easy access to any section of the case. Despite the long sloping front display, there is still ample space in the lower compartment, which is equipped with swinging-type doors, for the storage of an extra stock of fast-selling items.

Height of the case is 49 in., permitting an additional display on top of the case, if desired. Standard lengths are 6, 8, and 10 ft. Width in all models is 18 in. at top, 36 in. at bottom. Finish throughout is of acid-resisting porcelain, with black trim.

A removable patented diffusion shelf, made of heavy porcelain on steel with numerous ventilators cut into the shelf, directs cold air both beneath and above the foodstuffs in the case, eliminating sweaty and slimy meats. Three inches of Armstrong insulation, hydrolene sealed, and wrapped in waterproof felt, is used throughout.

Outside lighting is enclosed in a continuous shade reflector, vented to permit heat from bulbs to escape, and which casts an even glow over the case contents.

The company is increasing its factory space by 50,000 sq. ft. The new addition will be ready for occupancy by April 1, 1936.

Copeland Catalog Lists Commercial Machines

DETROIT—Copeland Refrigeration Corp. has just issued a pocket-size catalog, listing all models in its commercial refrigeration equipment line, including both methyl chloride and sulphur dioxide machines.

Important in the catalog is an application table for methyl chloride units, to insure selection of a model which will do the job for which it is intended. Listed in the table are various commercial applications, together with coil temperature requirements and average suction pressures.

Specification charts and capacity data are given for each model for both air- and water-cooled units.

Back cover of the catalog contains a handy chart, showing at a glance the market for commercial refrigeration equipment.

Prospects ranging from amusement parlors, banks, bakeries, churches, and florists, to filling stations, stores, restaurants, theaters, and warehouses are listed, and requirements in the line of refrigerators, coolers, ice cube makers, and air conditioning are checked in adjoining columns.

IF IT'S RUBBER—

ask Miller

MILLER'S technical staff has worked closely with every important manufacturer of refrigerators since the birth of the business. Developing special compounds for specific qualities, suggesting improvements in design, spotting possible economies, are daily routine with us. Strict professional respect for confidential data is always maintained.

If you are looking for a rubber compound that is free from odor, oil-resisting, grease-resisting, and even age-resisting — or if you have a peculiar problem in design of a rubber part — *let Miller do your worrying for you.* If we have not already a formula or a blueprint that answers the purpose, we will find one for you. No obligation. Just write to —

REFRIGERATOR PARTS DEPT.

Miller Rubber Products Co., Inc.—Akron, Ohio

"AN OLD NAME IN A YOUNG INDUSTRY"

CURTIS

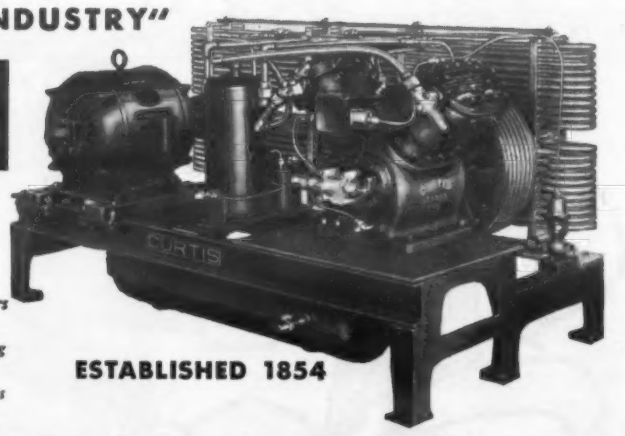
A Complete Line — *59 Units*

Fair Policy — *81 Years' Successful Merchandising*

Quality Workmanship — *41 Years' Building Compressors*

Financial Stability — *AaA1 Highest Capital & Credit Rating*

Proven Design — *13 Years' Building Refrigeration Units*



ESTABLISHED 1854

Only by Building Permanently on This Complete Combination Can You Secure Sure Profits in This Fast Growing Industry—

←*Air View of Curtis 20 Acre Plant*

Curtis is a well integrated institution having its own gray iron foundry, brass foundry, machine shop, pattern shop, tool room, electric welding department, structural shop and power plant.

CURTIS REFRIGERATING MACHINE CO.

Division of Curtis Manufacturing Co.
1912 KIENLEN AVENUE • ST. LOUIS, MISSOURI

MASTER SERVICE MANUAL

Chapter 9—Service

Service Operations for Type '2A' Flooded Systems Completed

By K. M. Newcum

87. Service Operations on '2A' Systems (Con't)

Service Operation No. 9:
Adding Oil to the Compressor

a. Fill a dry glass vessel with 50 per cent more refrigeration oil than is to be added to the system.

b. Attach a ¼-in. line to service connection 8.

c. Purge oil line.

d. Place open end of oil line into oil vessel, all the way to the bottom.

e. Close valve 1, and operate compressor to 15 in. vacuum, then stop compressor.

f. Open valve 6 and oil will flow from container through gauge set and into crankcase.

g. When the correct amount of oil has been added, close valve 6 and open valve 1.

h. Put compressor into operation.

Operation 9

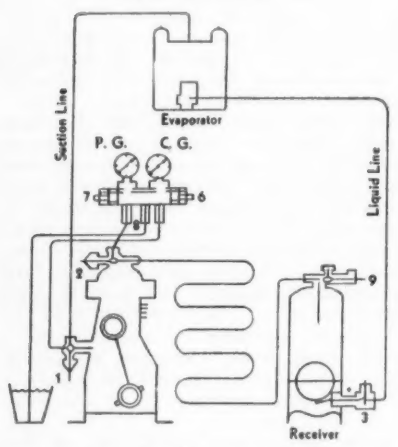


Fig. 150—Setup used for adding oil to compressor of type "2A" system.

Service Operation No. 10:
Changing Evaporator

a. Proceed as in service operation No. 1, through steps a, b, c, d, e, and f.

b. Remove liquid and suction lines from evaporator connection, and remove evaporator.

c. Replace with new evaporator.

d. Reconnect liquid and suction lines.

e. Purge liquid line as in operation 2.

f. Purge air from evaporator and suction line as in operation 3, or pump air from evaporator and suction line as in operation 4.

g. Test for leaks.

h. Open valves 3 and 1. Put system into operation.

Service Operation No. 11:
Changing Liquid Temperature Valve

a. Proceed as in operation 1, through steps a, b, c, d, e, and f.

b. At this point, the liquid line may be disconnected from liquid temperature valve.

c. Remove and replace liquid temperature valve.

d. Connect and purge liquid line.

e. Test for leaks.

f. Open valves 3 and 1 and put system into operation.

Service Operation No. 12:
Changing Liquid Receiver and Float Valve

a. Back seat valve 2 and remove gauge line from connection in valve 2.

b. Attach discharge line to connection in valve 2 and connect to empty refrigerant cylinder of ample capacity to hold entire charge.

c. Close valve 2 and open cylinder valve. Test discharge line for leaks.

d. Place refrigerant cylinder, inverted, into pail of ice water.

e. Close valve 3.

f. Operate compressor until liquid line, evaporator, and suction line are completely evacuated. At this point, the evaporator should be completely defrosted and there should be around a 25-in. vacuum on the compound gauge. Stop compressor.

g. Connect charged refrigerant cylinder to service connection 8.

h. Admit pressure from charged cylinder through valve 6 to build pressure up to 0 lbs. gauge, then close cylinder valve and valve 6. Remove line from charged cylinder and connect to connection on valve 9.

i. Open valves 9 and 6, then start compressor. The refrigerant will soon be drawn out of the liquid receiver through the combination gauge set and the crankcase and be pumped into cylinder in the ice water.

j. Continue operating the compressor until a 25-in. vacuum is drawn and the liquid receiver warm.

k. At this point, stop the compressor, close the cylinder valve, back seat valve 2, and close valves 9 and 6. Remove line from valve 9 and service connection 8. Remove discharge line from connection on valve 2. Connect to service connection 8. Connect pressure gauge line to connection in valve 2.

l. Open cylinder valve. Open valve 6 to allow pressure to build up to 0 lbs. Close valve 6.

m. Close cylinder valve, open valve 7. Move valve 2 off back seat about 2 turns. Crack cylinder valve to allow pressure on high side to build up to 0 lbs.., then close cylinder valve and valve 7.

n. At this point, the entire system is void of pressure above 0 lbs. and the liquid receiver may be removed and replaced.

o. After replacing receiver the refrigerant, originally discharged, may now be recharged into the system as in operation No. 8.

Operation 12

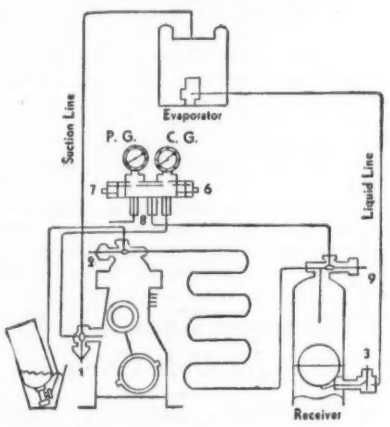


Fig. 151 shows connections made before changing liquid receiver and float valve.

Service Operation No. 13:
Changing Discharge Valve

a. Close valve 1 and operate to lowest possible back pressure.

b. Stop compressor and immediately close valve 2.

c. Open valves 6 and 7, allowing pressure from cylinder head to bypass into crankcase. Usually the pressure in the cylinder head is just sufficient to break the vacuum in the crankcase, thereby making it unnecessary to lose any large quantity of refrigerant into the atmosphere.

d. If the pressure in the crankcase is above 0 lbs., close valves 6 and 7 as this pressure will have to be relieved to the atmosphere.

e. If the pressure in the crankcase is below 0 lbs., crack valve 2 slightly allowing the pressure to increase to 0 lbs. Then close valves 2, 6, and 7.

f. Unbolt valve 2, leaving it attached to the condenser line, and move it to one side.

g. Unbolt cylinder head and remove cylinder head and discharge valve. Inspect piston valve while accessible and replace if needed.

h. Clean and oil gasket surfaces and install new discharge valve, using new gaskets at each joint. Bolt cylinder head and discharge valve back into place.

i. Reinstall valve 2.

j. Open valve 7 and uncap service connection 8.

k. Crack valve 1 and pressure from low side will purge out through service connection 8. Close valve 7.

l. Test for leaks with pressure from low side being admitted through valve 1. Then open valve 2 and again test for leaks.

m. Open valve 1 and put system into operation.

Service Operation No. 14:
Changing Compressor Body

a. Proceed as in operation 13 through steps a, b, c, d, e, and f.

b. Unbolt valve 1, leaving it attached to the suction line. Move it to one side.

c. Unbolt, remove, and replace compressor body.

d. Reinstall valves 2 and 1.

e. Open valve 7 and uncap service connection 8.

f. Crack valve 1 and pressure from low side will purge air from compressor body.

g. Close valve 7 and test for leaks.

h. Open valves 2 and 1 and put system into operation.

Service Operation No. 15:
Changing Stuffing Box Seal

a. With compressor idle, close valve 1.

b. Note pressure on compound gauge. If above 0 lbs., revolve flywheel by hand to reduce pressure to 0 lbs.

c. If pressure is below 0 lbs., increase to 0 lbs. by by-passing through gauge set.

d. Close valve 2.

e. Remove flywheel from shaft.

f. Remove present stuffing box seal and inspect shaft. Note: full instructions on stuffing box seals and shafts are given in chapter 4, paragraph 55, of the INTRODUCTION.

g. Install new stuffing box and reinstall flywheel.

h. By-pass pressure from cylinder head through gauge set to crankcase and test for leaks around stuffing box.

i. Open valves 1 and 2.

j. Operate compressor at around 5 lbs. back pressure for at least 15 minutes. Note: if SO_2 or Isobutane system and pressure goes below 5 lbs. open valves 7 and 6 just enough to keep pressure up to around 5 lbs.

k. After running for 15 minutes stop compressor, close valve 1, by-pass through gauge set to 35 lbs. pressure in crankcase. Test for leaks.

l. Close valves 7 and 6, open valve 1, and put system into operation.

Service Operation No. 16:
Changing Complete Condensing Unit

a. Proceed as in operation 1, through steps a, b, c, d, e, f, and g. Note: observe note under operation 1.

b. Disconnect liquid line from valve 3 and suction line from valve 1.

c. Disconnect any necessary electrical lines and connections.

d. Remove and replace condensing unit.

e. Reconnect liquid and suction line.

f. Purge or pump air from liquid line, evaporator, and suction line, as in operations 2, 3, and 4.

g. Test for leaks.

h. Open valves 3 and 1 and put system into operation.

Service Operation No. 17:
Discharging Condenser and Liquid Receiver

a. Proceed as in Operation 6, and continue purging until all the refrigerant has been discharged from the condenser and receiver. It is necessary in this case to close valves 1 and 3.

Service Operation No. 18:
Pumping Refrigerant from Condenser And Receiver Into Empty Refrigerant Cylinder

a. Proceed as in operation 12 through steps a, b, c, d, and e.

b. Connect a line from service connection 8 to connection on valve 9.

c. Close valve 1.

d. Open valve 9 and crack valve 6, using valve 6 as a throttle valve.

e. Put compressor into operation and operate until around a 25-in. vacuum is drawn on receiver and condenser and the receiver is warm.

Operation 18

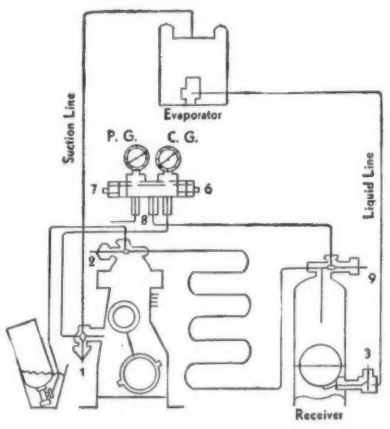


Fig. 152—The valve and line connections shown in the sketch above are made for pumping refrigerant from condenser and receiver into an empty cylinder.

f. At this point stop the compressor, close the cylinder valve, back seat valve 2, close valves 9 and 6. Remove line from valve 9 and service connection 8. Remove discharge line from connection on valve 2, and connect to service connection 8. Connect pressure gauge line to connection in valve 2.

g. Open cylinder valve. Crack valve 6, admitting refrigerant to build pressure up to 0 lbs. Close valve 6. Close cylinder valve.

h. Open valve 7. Move valve 2 off the back seat about two turns. Crack cylinder valve to allow pressure to flow into condenser and liquid receiver until the pressure has reached 0 lbs. Then close cylinder valve and valve 7.

i. At this point, the entire condensing unit is void of refrigerant pressure above 0 lbs. and any part of the condenser, receiver or compressor may be opened for repairing or inspection.

j. Remove refrigerant cylinder if desired.

Service Operation No. 19:
Pumping Refrigerant from Entire System Into Empty Refrigerant Cylinder; or Evacuating Entire System

a. Proceed as in Operation 12 through the entire operation.

Operation 20

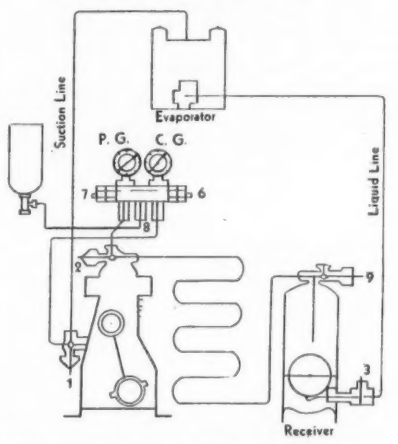


Fig. 153—For adding refrigerant to the condenser and liquid receiver, the cylinder is connected to service connection 8.

Service Operation No. 20:
Adding Liquid Refrigerant to Condenser and Liquid Receiver

a. Connect the refrigerant cylinder to service connection 8.

b. Stop the compressor and allow condenser to cool to room temperature.

c. Invert refrigerant cylinder, and fix it securely so that it will not fall off and break the charging line.

d. Purge the charging line and test for leaks.

e. Open the cylinder valve.

f. Open valve 7.

g. Move valve 2 at least two turns away from the back seat.

h. The liquid refrigerant will flow

(Continued on Page 13, Column 1)

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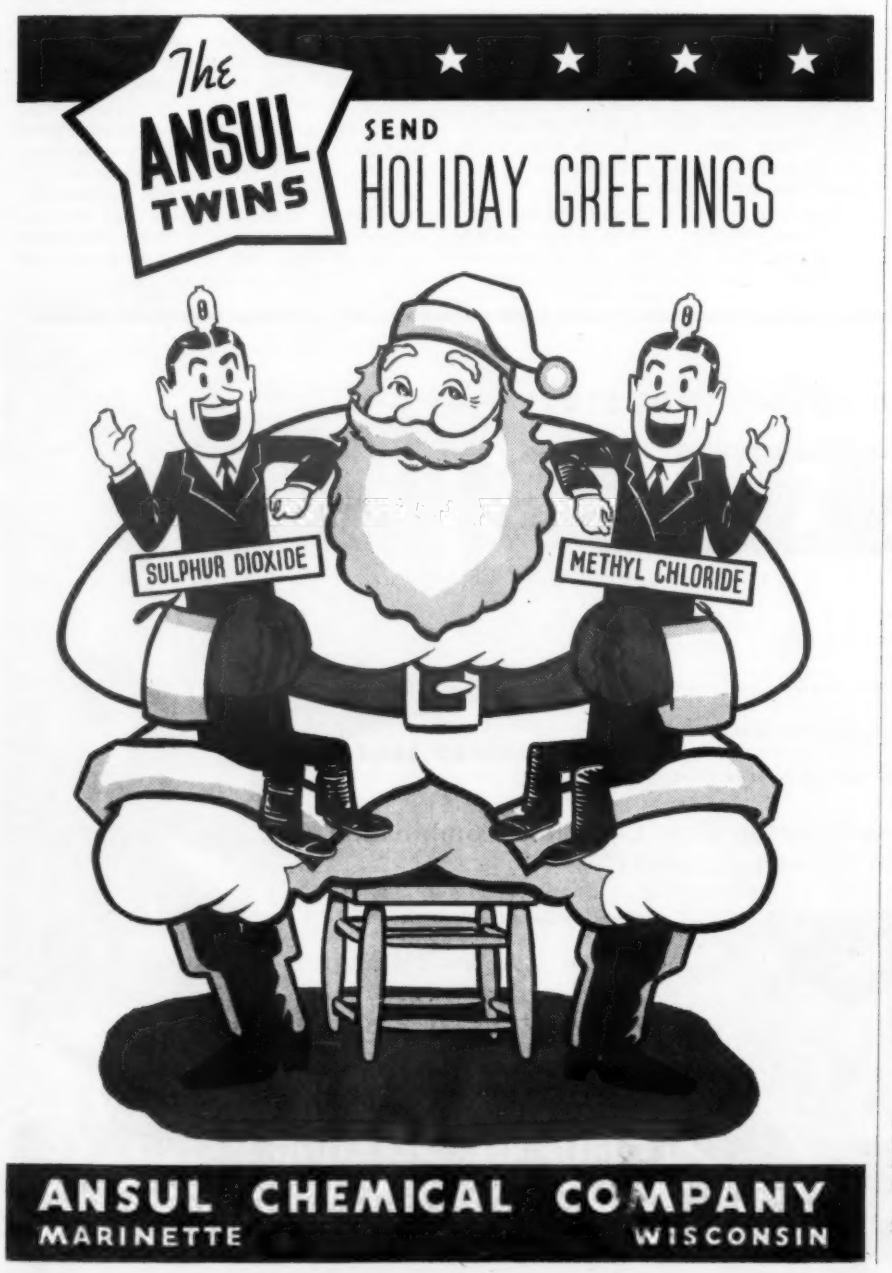

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Common Complaints On Dry Expansion Systems

(*Continued from Page 12, Column 5*)

slowly from the cylinder through the gauge set, through valve 2 and into the condenser and receiver.

i. After the refrigerant has started flowing, apply heat to the cylinder to keep it warm—*not hot*, and the increased pressure in the cylinder will cause the liquid to flow rapidly to the condenser and receiver.

j. Remove the source of heat.

k. Close the cylinder valve.

l. Close valve 7.

m. Open valve 6 and the pressure from the charging line will be admitted to the low side.

n. Close valve 6 and remove the charging line. Cap outlet 8 and put system into operation.

88. Type '3A' Dry Expansion System

Type "3A" dry expansion system employs the automatic expansion valve as the refrigerant control. The temperature is controlled by a thermostat.

The arrangement of the service valves is the same as in type 1 system, and is shown in Fig. 154.

Service complaints and operations are given with the combination gauge set installed and properly connected to valves 1 and 2, as shown in the illustration.

The cycle of operation and general function of the dry expansion system is given in Chapter 5, starting with paragraph 66. It would be well to review this study before proceeding with the following service complaints and operations.

89. Complaints on Type '3A' Dry Expansion System

Complaint No. 1:
Compressor Does Not Run Much: Evaporator Is Defrosting

As in any system controlled by a thermostat, this complaint would suggest that the thermostat is not keeping the system in operation sufficiently long to provide adequate evaporation to reduce the evaporator and refrigerator temperature.

The thermostat should be carefully checked for all possible causes of too warm a setting, or a discharged power element.

The overload relay should be examined. Conditions causing the overload relay to snap off should be corrected.

If unable to obtain the correct temperature adjustment, the thermostat should be replaced.

Complaint No. 2:
Compressor Runs Continuously, But Does Not Freeze Ice

This complaint would indicate that the thermostat is keeping the compressor in operation, but for some other reason insufficient evaporation is taking place.

The operating pressures should be carefully noted on the gauges. If the low side pressure is normal and high side pressure low, and the evaporator is only partly frosting or not frosting at all, a shortage of refrigerant may be the cause. A shortage of refrigerant will result in a steady low hissing noise at the expansion valve.

Additional refrigerant should be added in small quantities noting any increase in high side pressure and further frosting of the evaporator. Add refrigerant until the high side pressure is normal and the evaporator fully frosts—in most domestic systems, one or two pounds is sufficient.

If the low side pressure is normal and high side pressure excessive, stop compressor and purge until pressure returns to normal. Excessive head pressure materially increases running time and reduces compressor efficiency.

If the high side pressure is normal or lower than normal, and the low side pressure extremely low, check all strainers and filters for stoppage. Usually any clogged filter affecting normal operation will frost or sweat beyond the clogged portion which aids in locating the trouble.

Should the back pressure be higher than normal, and the high pressure normal or slightly higher than normal, the expansion valve may be leaking or open too far.

This condition will usually be accompanied by a frosted or sweated suction line.

Most cases of this nature, especially where the system has been in normal operation for some time, are directly tracable to foreign material collected between the valve seat and needle, holding the valve open.

The valve should be flushed as explained in paragraph 66.

If flushing does not reduce the pressure to normal, the adjustment may be changed. If the valve does not respond to flushing or adjusting, it should be replaced.

A leaking discharge valve, by materially reducing the compressor efficiency, will result in long running time and poor refrigeration. This same rule applies to the piston or suction valve. These two parts should be checked, and corrected if found to be leaking.

Should the evaporator be of the brine tank type, the brine level should be checked. The level should be near the top of the tank. The brine level affects the frost line on the tank, for, in most cases, the brine tank will frost only to the height of the brine level.

Moisture in a methyl chloride, isobutane, or Freon system may freeze at the expansion valve, restricting normal flow of refrigerant. To distinguish between moisture in the system and a clogged filter or strainer, stop the compressor and apply heat to the expansion valve. If, upon the application of heat, the stoppage blows loose and the refrigerant suddenly rushes into the evaporator, the condition may be traced to moisture.

This moisture may be removed by installing a dehydrator in the liquid line.

Complaint No. 3:
Trays or Metal Parts Tarnished

This complaint would be the same for any type of system and is covered

(*Concluded on Page 14, Column 3*)

Type '3A' Dry Expansion System

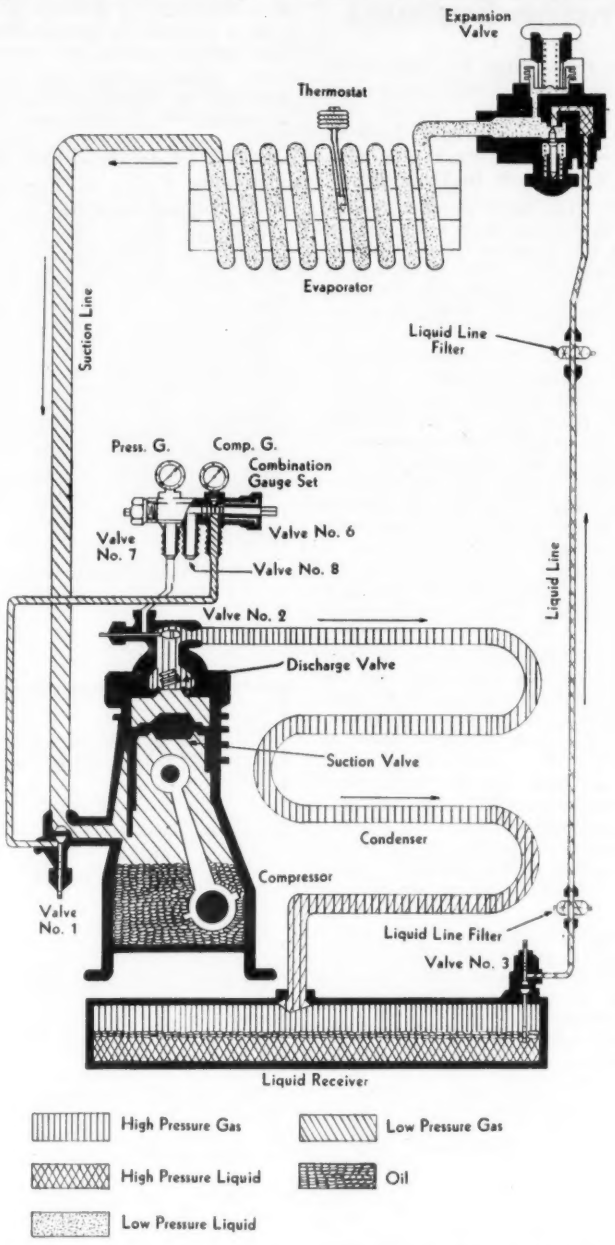

Fig. 154—Main parts of a dry-expansion system (type "3A") are shown in the sketch above which also shows the refrigerating cycle of the system.

Summary of Instalments Published Previously

A summary of previous instalments of the Master Service Manual follows:

Chapter 1—Theory of Refrigeration (April 10).

Chapter 2—Principles of Mechanical Refrigeration (April 17).

Chapter 3—Common Refrigerants (April 24).

Chapter 4—Condensing Units.

May 1—Description of compressor parts.
May 8—Stuffing box seals, flywheels, and direct-connected units.
May 29—Rotary compressors.
June 5—Care and servicing of shut-off valves and gaskets.
June 12—Condensers.
June 19—Liquid receivers.

Chapter 5—Evaporators.

June 26—Flooded evaporators with low side float valve.
July 3—High side float valves and flooded evaporators
July 10—Automatic expansion valves.
July 17—Automatic expansion valves—continued.
July 24—Thermostatic expansion valves.

Chapter 6—Controls.

July 31—Low pressure controls.
Aug. 7—Low pressure controls—continued.
Aug. 14—Thermostatic controls.
Aug. 31—Thermostatic controls—continued.

Chapter 7—Motors.

Aug. 28—Repulsion start-induction run motors.
Sept. 4—Repulsion start-induction run motors (continued) and capacitor motors.
Sept. 11—Direct current motors and belts.

Chapter 8—Installation.

Sept. 18—Installation of refrigerators.
Sept. 25—Correct use of fittings in making joints.

Chapter 9—Service.

Oct. 16—Classification of systems and use of combination gauge set.
Oct. 23—Service complaints and remedies on Type 1A flooded systems.
Oct. 30—Service complaints and remedies on Type 1A flooded systems—continued.
Nov. 6—Service operations on Type 1A flooded systems.
Nov. 13—Service operations on Type 1A flooded systems—continued.
Nov. 20—Service Operations on Type 1A flooded systems—concluded.
Nov. 27—Service complaints and operations on Type 1B and 1C flooded systems.
Dec. 4—Service operations on Type 1D and complaints on Type 2A systems.
Dec. 11—Service operations on Type 2A flooded systems
Dec. 18—Service operations on Type 2A flooded systems (continued) and complaints on Type 3A dry-expansion systems.

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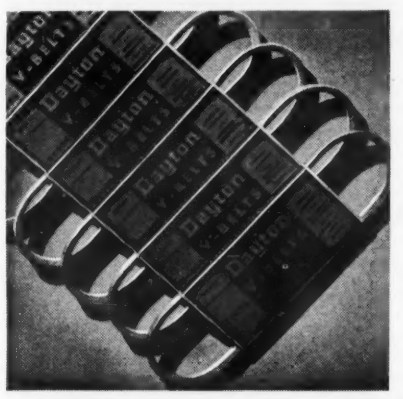

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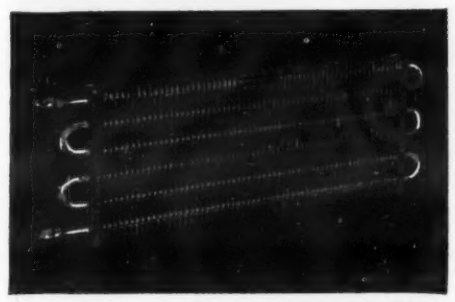

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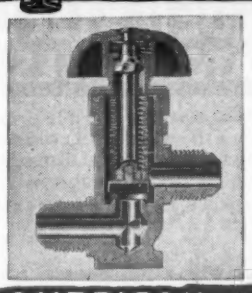

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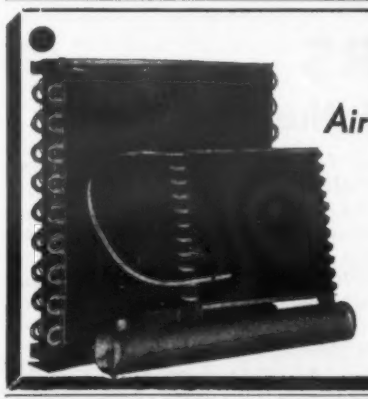

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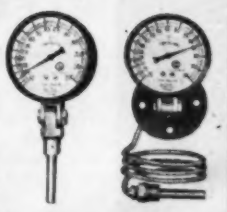

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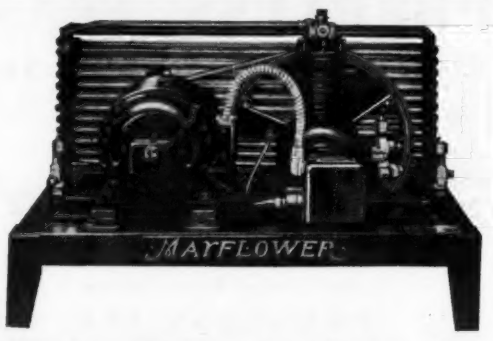

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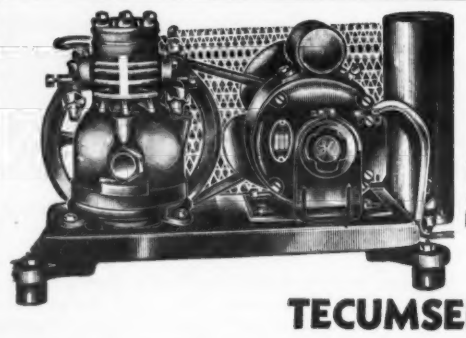

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Complaints on Dry Expansion Systems

(*Concluded from Page 13, Column 3*)

in complaint No. 3 under type "1A" system.

Complaint No. 4:
Costs Too Much to Operate

This complaint may be due to the thermostat being set "too cold," maintaining a lower than necessary refrigerator temperature. Check the temperature with an accurate thermometer and set control warmer if found necessary.

Check carefully the contact between the bulb and the evaporator. If the thermal contact is bad, the thermostatic bulb may not be responding directly to the evaporator temperature, but partially to the refrigerator temperature. The clamp or device for maintaining this contact should be tight, both at the point of contact with the bulb, and with the evaporator.

Loosely fitting doors and worn out door gaskets will result in unnecessary heat leakage and increase operating time.

Water soaked insulation in the cabinet will materially increase the refrigeration demand and increase operating costs.

Excessive freezing of ice cubes or desserts with the necessary colder regulation on the control will affect the operating cost.

Placing hot foods in the refrigerator runs up the electric bill. Foods should be allowed to cool to room temperature before being placed in the refrigerator.

All causes of excessive operating head pressures and conditions imposing an overload on the motor should be checked as possible causes of increased operating cost.

It is also possible that the user may have an erroneous impression of the actual operating cost.

It is also possible in cases of large families that meals may be served at all hours and the refrigerator may be used considerably more than for smaller families. In the case of the large family, the same make and model of refrigerator might show an appreciable increase in operating cost above that of the smaller family.

Complaint No. 5:
Compressor Noisy

This would be the same in any type of system and is completely covered under type "1A" system, complaint No. 5.

Complaint No. 6:
Ice Freezes but Food Spoils

If the system is functioning correctly as is indicated by the fact that the ice cubes freeze properly, note the frost and ice accumulation on the evaporator.

If the evaporator is heavily coated with frost or ice, the heat from the food is insulated from the evaporator and refrigerant, resulting in high refrigerator temperatures and spoilage. This frost and ice may also close or restrict air passages necessary for the proper circulation of air.

Free circulation of air is necessary and in many cases it is found that dishes and vessels containing foods are placed tightly together, seriously interfering with circulation.

Paper, glass, or other shelf coverings should not be used. Refrigerator shelves should be open and free to provide circulation.

After defrosting and rearranging the foods, etc., it may be found that a complaint of this nature is corrected.

Complaint No. 7:
Food Has Peculiar Taste

Refer to complaint No. 3, as conditions causing trays to tarnish may cause food to taint.

Lemons, onions, and other highly odorous foods should be placed near the air passage to the evaporator so their odors will be immediately absorbed by the evaporator.

Note the refrigerator temperature on an accurate thermometer. The temperature should be below 50° F. in all parts of the cabinet. Refer to complaint No. 6 for conditions restricting air circulation, resulting in high refrigerator temperatures.

In some types of cabinets and old ice boxes, it is possible for rotted insulation to set up an odor in the refrigerator. All cracks, holes, and seams should be carefully filled and sealed.

In many cases, completely cleaning the evaporator, trays, shelves, and interior of refrigerator with warm water and baking soda will remove traces of odors.

Complaint No. 8:
Motor Starts and Stops Too Much

This complaint would indicate that the thermostat is cutting in and out on short cycles. A poor or irregular thermal contact between the bulb and evaporator may cause this condition.

The capillary tube from the bulb to the power element may be touching the cold evaporator resulting in irregular control operation.

The control may be out of adjustment and the differential may be set too close. The differential in most controls is adjustable. The operating range should be checked by placing a thermometer in direct contact with the thermostatic bulb.

If a correct range is not obtainable, the control should be replaced.

A loose electrical connection effected by vibration might also cause a complaint of this nature.

Complaint No. 9:
Blowing Fuses or Overload Relay Continues to Cut Out

First examine the size of fuses or overload heater element. See that they correspond with the size recommended for the size motor in value. If incorrect, replace with proper size.

Check all conditions that could impose an overload on the motor, such as high head pressure, high back pressure, belt too tight, motor bearings dry, compressor short of oil, or motor too small. Correct any one or all of the prevailing conditions.

Examine the control contacts for arcing. Excessive arcing may cause the complaint.

Complaint No. 10:
Compressor Knocks

See complaint No. 5, compressor noisy.

PATENTS

Issued Dec. 10, 1935

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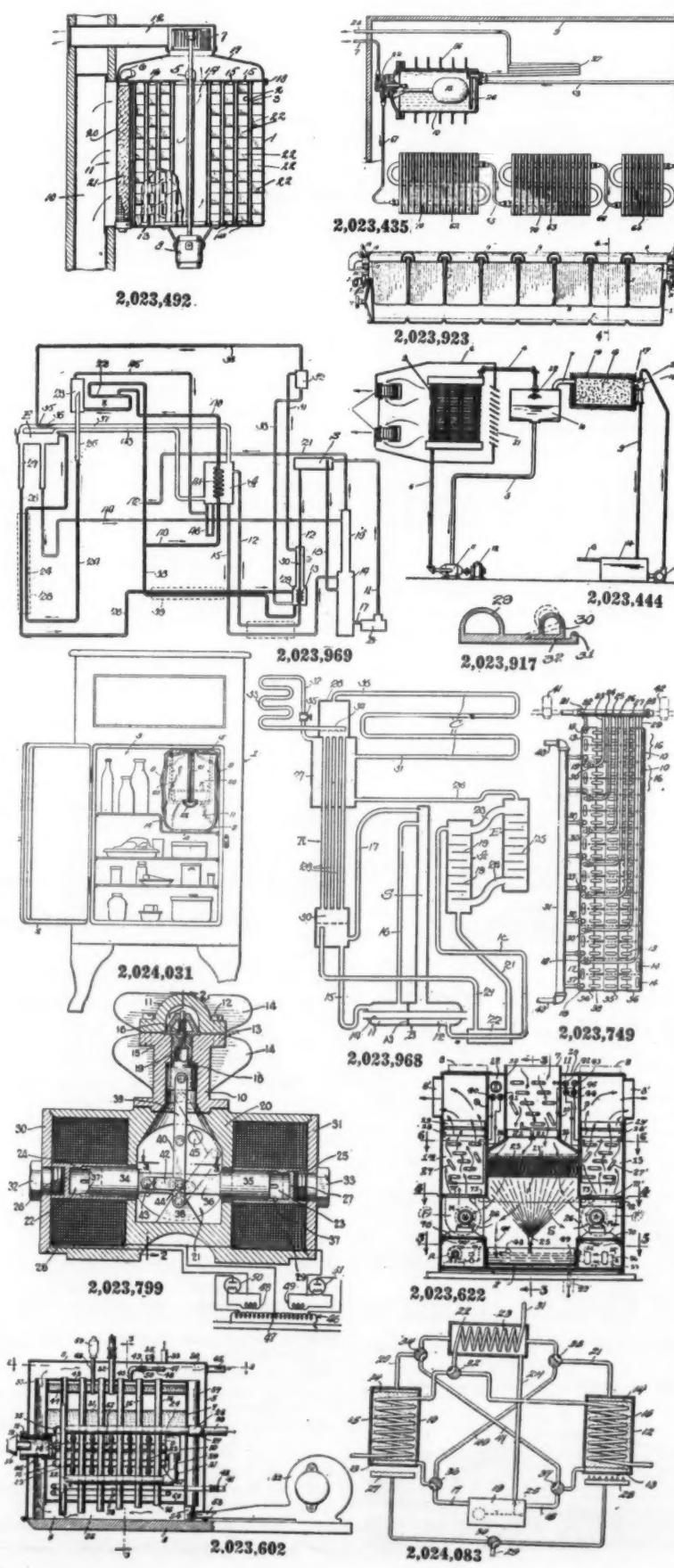

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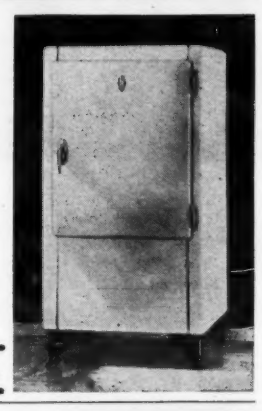

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Vol. 10—Sept. 6 to Dec. 27, 1933. (Serial Nos. 233 to 249.)
Vol. 11—Jan. 3 to April 25, 1934. (Serial Nos. 250 to 266.)
Vol. 12—May 2 to Aug. 29, 1934. (Serial Nos. 267 to 284.)
Vol. 13—Sept. 5 to Dec. 26, 1934. (Serial Nos. 285 to 301.)
Vol. 14—Jan. 2 to April 24, 1935. (Serial Nos. 302 to 318.)
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Remarks .....
(Please indicate products sold or principal line of business.) 12-18-35

QUESTIONS

Two-Temperature Valve

No. 2603 (Manufacturer, Ohio)—"In a conversation with a member of a company of this city regarding the possibility of distributing, through them, a thermal snap two-temperature valve which I have perfected, mention was made of an inquiry appearing in a recent issue of your publication, seeking information of source for obtaining such a device.

"I would be pleased if you might be disposed to send me this copy mentioned."

Answer: We believe you refer to Query No. 2581, published in the Nov. 27 issue of ELECTRIC REFRIGERATION NEWS, and headed "Two-Temperature Valves."

Miller Conditionair Co.

No. 2604 (Service Firm, Massachusetts)—"We read an article concerning the unit for air conditioning manufactured by the Miller Co. of Los Angeles, Calif., in a recent issue of your publication and dropped a post card to them asking for further information.

"Evidently there was not sufficient address on same, because we have never heard from them.

"To this end, we are enclosing another request to them in this letter, and ask that you kindly supply the street address and send it along."

Answer: Complete address of the Miller Conditionair, Inc., is 1138 S. Broadway, Los Angeles, Calif.

Sales to Income Groups

No. 2605 (Advertising Agency, Illinois)—"Do you have any figures which show how ownership of electric refrigerators for domestic use varies by economic classes; in other words indicate the saturation among Class A, B, C, and D families? Class A, as you know is the wealthy, Class B the upper middle class, C the lower middle, and D the poor.

"Also we are searching for figures showing the variation in extent of ownership by size of town—the census grouping of cities and towns, if possible.

"As there has been such an upswing in refrigerator sales this year, the more recent the estimate of the above, the greater the value."

Answer: The Polk survey given in the 1935 REFRIGERATION AND AIR CONDITIONING MARKET DATA BOOK gives figures which show how ownership of electric refrigerators varies by classes A, B, and C for 22 cities in the United States. The only figures we have by manufacturers are by state distribution and are published in the DATA BOOK.

Also contained in the DATA BOOK is the Real Property Inventory for 1934 which is a survey of residential conditions in 64 cities made by the United States Government. This survey, as well as the Polk survey, shows figures by city sizes.

We have to date published in ELECTRIC REFRIGERATION NEWS figures issued by the Department of Commerce on five cities in the United States showing the relationship of refrigeration ownership and incomes. The survey for Salt Lake City appeared in the Dec. 11 issue, for Columbia, S. C., in the Oct. 23 issue, for Fargo, N. D., in the Sept. 4 issue, and for Austin, Tex., and Portland, Me., in the July 17 issue.

Copies of these reports may be obtained at a cost of 10 cents each by writing to Miss Ada Lillian Bush, Chief, Consumer Market Section, Marketing Research and Service Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

Freon Users

No. 2606 (Advertising Agency, Illinois)—"We would like to know the names of refrigerator manufacturers using Freon gas. Can you give us their names, or is the information available anywhere?"

Answer: Specifications which were published this year in ELECTRIC REFRIGERATION NEWS show that Westinghouse Electric & Mfg. Co., Frigidaire Corp., and Crosley Radio Corp. use refrigerants of the Freon Group in some models of their household refrigerator lines. For further information on this subject, write Kinetic Chemicals, Inc., Wilmington, Del.

Standard Pipe Thread

No. 2607 (Distributor, Italy)—"I am most interested in getting information about dimensions of Briggs standard pipe thread, possibly together with complete indication of thread fits, and tolerance on thread gauges and limits of same.

"I should be much obliged to you for kindly stating me some publication on the subject.

"May I observe at this opportunity that I did not find such information in the *Refrigerating Data Book* which I possess.

"I should be very glad in receiving your kind communications on the foresaid subject. Publications recommended by you might also contain information about S.A.E. standard dimensions of threads for flared copper tube fittings and shut-off valves."

Answer: We believe the table on page 10 of the Sept. 25 issue of ELECTRIC REFRIGERATION NEWS, which gives standard refrigeration fittings specifications, will answer all the questions which you may have.

Merits of Compressors

No. 2608 (Technical School, Illinois)—"In connection with some research work which I have on hand at present I am anxious to secure as much information as possible about electric refrigerators used in domestic service.

"Among the points in which I am particularly interested is the question of the relative merits of reciprocating and rotary compressors. Doubtless both types have their good points inasmuch as both are used. I am not interested in the product of any particular manufacturer, but am anxious to secure all the reliable information possible about this feature of these machines.

"I have been referred to your organization as a possible source of reliable information along this line. I should be pleased to receive anything that you may have, particularly any published data bearing on the subject."

Answer: We have not published any information dealing with the relative merits of reciprocating and rotary compressors.

However, a description of the principles of operation of reciprocating and rotary compressors is included in Chapter 4 of the MASTER SERVICE MANUAL which we are publishing.

In an article on the lubrication of small compressors appearing in the Dec. 4 issue of ELECTRIC REFRIGERATION NEWS there are photographs and diagrams showing the construction and operating principles of both types of compressors, and you may be interested in this article. Back issues of the NEWS are obtainable at a cost of 10 cents each.

Efficiency of Machines

No. 2609 (Dealer, Illinois)—"Could you please send me some circulars on electric refrigeration? I would like to find out which electric refrigerator on the market is the most efficient and most economical. If you can't furnish this information can you tell me where I can write for information?"

Answer: We cannot supply you with data showing which refrigerators are the most efficient and most economical.

A list of manufacturers of household electric refrigerators is published in the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY, and by writing to the manufacturers listed therein you can probably obtain information on the merits of the various units.

List of Service Men

No. 2610 (Manufacturer, Ohio)—"We are interested in securing a list of refrigeration service accounts as well as refrigeration manufacturing concerns, and as we understand you prepare and distribute such lists, we would like to know just what such a list would cost, and also how many names would be included in the list."

Answer: You will find a list of independent refrigeration service men published in the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY. Please note, however, that this list is not large and in no manner complete. As stated in the "Foreword" of the directory:

"We make no claim to completeness in connection with this new section. Much time and effort has been expended in collecting information but these branches of the industry are still in the formative stage. In another year, perhaps, we may be able to furnish a more accurate and comprehensive directory of these service groups."

We are continuing to devote much attention to independent service men and the new group of replacement parts jobbers as you will note from current issues of ELECTRIC REFRIGERATION NEWS. It is possible that we may be able to offer a mailing service to these groups by the first of the year and we are now working on plans in that direction.

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REPLIES to advertisements with Box No. should be addressed to Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

SALESMEN in the different commercial centers of the country to sell The Reeves Unit Cooler to Refrigeration Dealers. This cooler has been introduced in New England during the past two years with wonderful success. It is designed solely for use in Market and Food refrigerators and is entirely different from any other cooler. Prefer men now calling on refrigeration dealers, and we offer liberal commission. If you reply give complete details and reference. The Reeves Engineering Co., Milford, Conn.

SALES ENGINEER
A PROMINENT MANUFACTURER of automatic control equipment has several openings for sales engineers. Previous University training or experience in Air Conditioning and heating, and an acquaintanceship with architects and engineers is essential. Address Box No. 748, care of Electric Refrigeration News.

IF YOU are a commercial refrigeration man with matured experience in commercial sales training and national user sales work, there is an immediate opportunity for you with a large manufacturer. Give history of your experience, connections, present occupation, and age. Box 749, Electric Refrigeration News.

NATIONALLY KNOWN manufacturer will consider application for several men for field sales training and sales promotion work. Must have refrigeration experience. Full particulars and references must be furnished. Box 750, Electric Refrigeration News.

SALES ENGINEER wanted on commercial and air conditioning; fully experienced, preferably on ammonia equipment. Write qualifications, experience, and references but please do not telephone or come personally. T. J. Pendergast, Universal Cooler Corp., Detroit, Mich.

WANTED commission men calling on refrigeration and washing machine trade, to handle Goodyear V-belts for replacement. Exclusive territories still available. Liberal commission. Prefer men selling allied lines. Write in detail to Detroit Rubber Products, Inc., 35 Parsons St., Detroit, Mich.

POSITIONS WANTED

WORKS OR PRODUCTION MANAGER. Owing to circumstances which do not reflect either upon myself or present employer, I desire to form new connection. Original letters in my possession from existing and former employers during last 15 years testify to my ability as an able and experienced executive in Commercial and Domestic refrigeration. My record as a Research, Experimental and Production Engineer is a convincing story of my success in reducing costs and increasing production. I shall be glad to enter into correspondence with a firm which desires fuller particulars and will hold all communications in confidence. Address J. J., c/o Electric Refrigeration News.

EQUIPMENT FOR SALE

MANUFACTURERS OVERSTOCK: New six hole double ice cream cabinets, stainless tops, portable or remote control. Quantity limited. Priced at $55.00 for quick disposal. ½ HP new Servel units for above at $40.00 less motor. Extra special, 1 HP Frigidaire, rebuilt and guaranteed, $95.00. Send for bargain list of new coils. Pioneer Refrigeration Equipment Co., 33 Warren St., New York City.

DEALERS AND SERVICEMEN. We sell used refrigerators "As Is". Recondition and spray them yourself and save money. Used Kelvinators $19.00, Frigidaires $25.00, Copelands $22.50, Servels, $19.00, Ice-O-Matics $39.00, also General Electric, Westinghouse, Electrolux and many others. Some all porcelain. Pilgrim Refrigeration Co., 43-47 39th Place, Long Island City, N. Y.

REPAIRS

HALECTRIC control repair service. All makes thermostatic and pressure controls rebuilt. Automatic and thermostatic expansion valves repaired. Refrigerant gases carried in stock for rush shipment. Warrenoil for stuck-up compressors. Rebuilt American Radiator Mercoid controls similar to No. 848, five dollars each. Halectric Laboratory, 1793 Lakeview Rd., Cleveland, Ohio.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. Van Deventer (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

HERMETIC UNITS REPAIRED

GENERAL ELECTRIC SEALED UNITS—repaired, rebuilt, exchanged. Guaranteed service. Our modern shop is especially equipped to efficiently repair these units. Prices low and workmanship the best. Give model number when writing. Immediate service. Rex Refrigeration Service, 446 East 79th St., Chicago.

SCHOOLS

REFRIGERATION–AIR CONDITIONING. Learn installation, servicing, estimating and engineering sales in a resident school. Modern class rooms, competent instructors, well equipped laboratories with domestic and commercial refrigeration and air conditioning equipment for students to work on. Thorough, practical training. Detroit School of Refrigeration, 6517-6519 Grand River Ave., Detroit, Mich.